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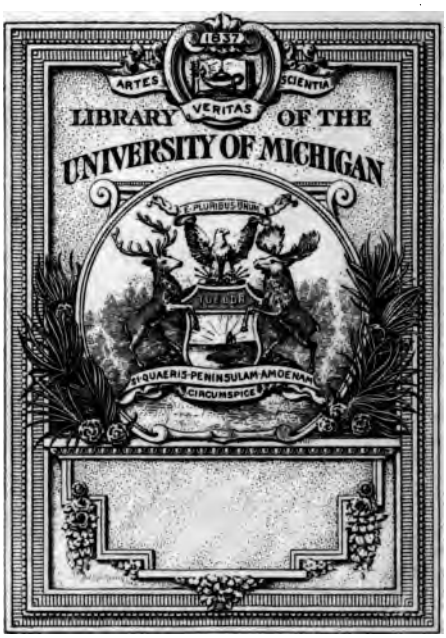
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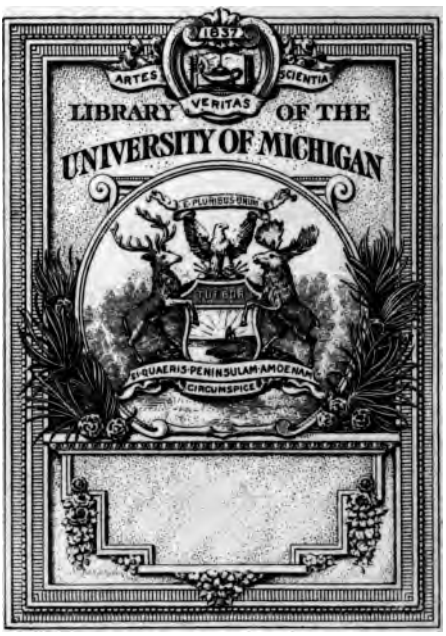
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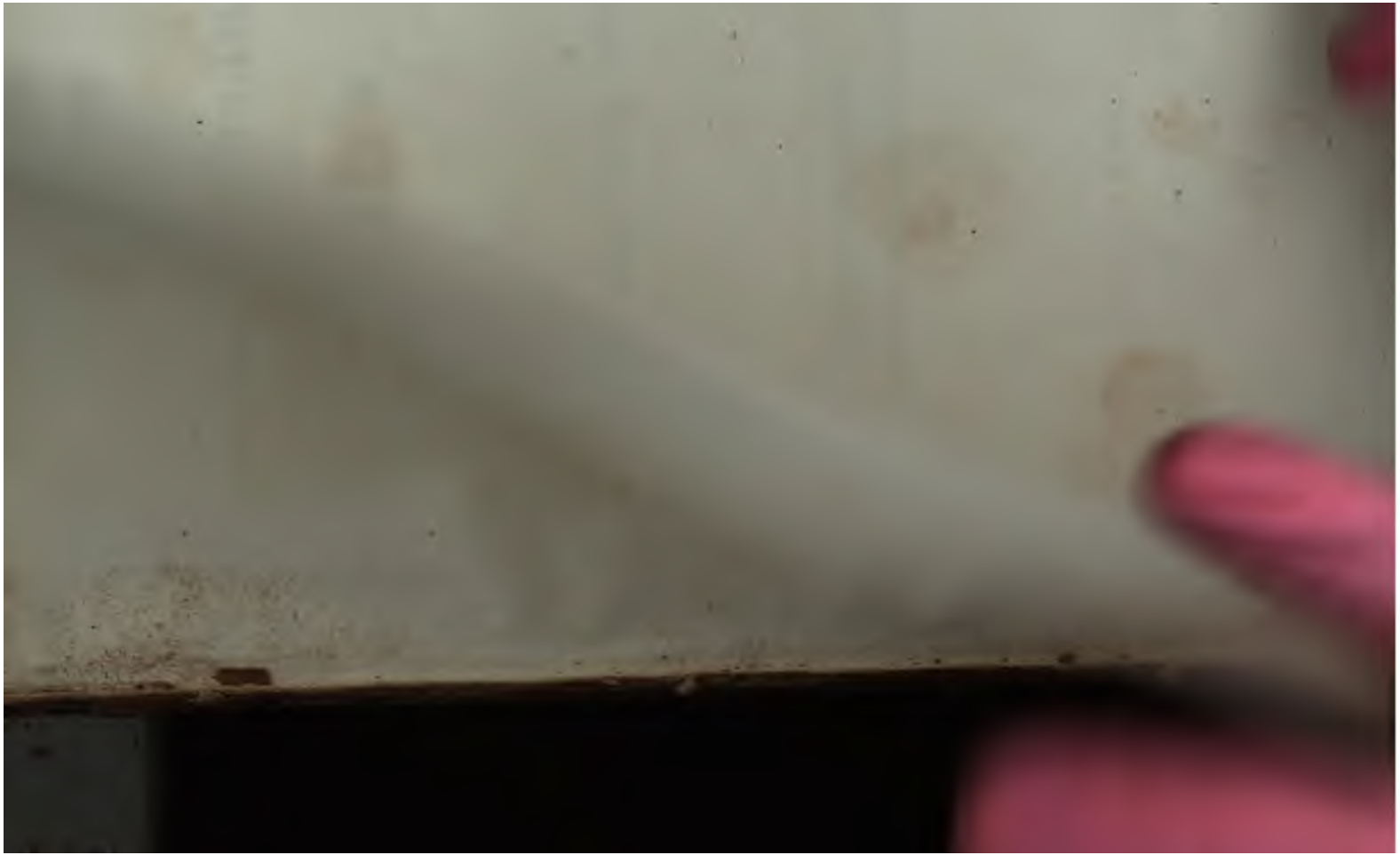

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THE

MEDICO-CHIRURGICAL REVIEW.

JANUARY, 1846.

A Sketch of the Life, and some Account of the Works, of the late Dr. James Johnson.

Multis ille bonis flebilis occidit;
Nulli flebilior quam mihi.

On the 10th of last October, died Dr. James Johnson. This Review owed its existence to him. It originated in his bold conception—it was raised to a high pitch of circulation and celebrity, by his talents and industry—it was written with his own hand for nearly twenty years, and carried on under his watchful superintendence for more—it was regarded by him with a sort of paternal affection—and we should be wanting in all that gives dignity to gratitude, and gracefulness to affection, if we did not, to the best of our poor abilities, set forth his claims to the respect of the Profession, and to be ranked with its illustrious dead.

Nor are those claims slight. If natural ability, varied information, industry that never quailed, a ready pen, a caustic and yet a kindly humour, professional knowledge acquired under every difficulty and dispensed with unbounded generosity, a probity that could not swerve, and a benevolence that knew no limit to its objects, constitute the features of a character to be admired as well as loved, then the subject of this Memoir will be both.

James Johnson, or rather Johnstone, for that was really his name,* was born in February 1777, on the banks of Lough Neagh, in the parish of Ballinderry, County of Derry, Ireland. Like Cobden, he might boast that he was "a farmer's son," his father cultivating a small farm, which had

* An accident or a whim led originally to a change, which prudential considerations perpetuated. Perhaps, such may no longer influence his family, who may choose to resume their real surname.

been for some time in the possession of the family. James Johnson was the youngest of the children, all of whom he lived to survive; none of them distinguishing themselves sufficiently to require any further notice.

At the age of six years, he was put to a grammar-school, kept by a Catholic, the village pedagogue, and brother of the parish priest. Whatever his attainments, they were probably of no very elevated order, for the pupil in after-life spoke somewhat lightly of them, and implied, at all events, if he did not state, that he learnt little at school, which he cared subsequently to remember. At the time, however, he thought differently—he always sought to be, and generally was, at the head of his class—he was miserable, as he himself tells us, when not so—and he would sit up till midnight conning the lessons of next day. The boy is the type of the man, and the seeds of those qualities, good or bad, which shall ripen in our maturity, are sown and germinate in our most tender years. Ambition, "the last sin of noble minds," will reign in the breast of the village lad, and, just as it is well or ill directed, will lead its slave to reputation or to ruin. It conducted young Johnson to the former, thanks to a mind naturally strong, and to a moral sense implanted early, cultivated always, and confirmed rather than shaken by the struggles of life.

Before he was fifteen he had quitted school, and the instruction that he got there was all that he ever obtained from others. Great as were his acquirements in later years, and various as his reading, they were gained when the age of pupilage and almost that of youth was over, and were solely the fruit of his own application and his thirst for knowledge. He carried with him from the school-room of Ballinderry, a moderate acquaintance with the construction of his own language, a still more moderate idea of Latin, a notion that Greek was something altogether beyond his reach, and a total ignorance of every modern foreign tongue.

At the age of fifteen, he was apprenticed to Mr. Young, a surgeon-apothecary in Port-Glenone, in the County of Antrim. He remained there only two years, when he was transferred to Mr. Bankhead, of Belfast, where he continued for two years more, and then came to London, without either money or friends. He became assistant to an apothecary in the Metropolis, and, by hard study and irregular attendance on lectures in anatomy and surgery, he passed a creditable examination at Surgeon's Hall, in 1798, and was appointed surgeon's mate in the navy, in the month of May of that year. In the Mercury frigate, he sailed to Newfoundland and Nova Scotia, always reading indefatigably, and seizing every opportunity, when

the ship was in harbour, to visit the naval hospitals to watch the cases they contained, and store up professional knowledge. Now, and ever after, he made notes of any thing important that he saw, and is another instance (if instances were wanting) of the value of recording facts and impressions, at the time of their occurrence.

Captain Rogers, the Commander of the Mercury, had a great antipathy to the Irish, but the zeal and good conduct of the young surgeon's mate subdued the ungenerous prejudice, and Captain Rogers winked at his absence from the ship, for some months, in the Winter of 1799, when he studied night and day in London. The fruits of his diligence were soon apparent, for, in January 1800, he passed, for the second time, a triumphant examination at Surgeon's Hall.

He had obtained some honour, and, what was more substantial, he had gained a patron in Captain Rogers. This gentleman, of whom he always spoke in terms of affectionate remembrance, got him made full surgeon, and appointed to the Cynthia, sloop-of-war, on the 27th of February. He was now in the twenty-second year of his age, and, in the Cynthia, he accompanied the famous expedition to Egypt, was at the siege of Belleisle and at all the descents which the troops made on the coasts of France, Spain, &c., till they reached their destination. The fatigues and anxious nature of his duties proved too much for him; he was attacked with illness, and was sent back to Gibraltar, where he did duty for some time under Mr. Vaughan, the Surgeon of the Naval Hospital.

From Gibraltar he returned to London, in the Winter of 1800. He had recruited from his sickness—saved a little from his pay—had a few months before him—and resolved to expend all that he possessed, both in guineas and in time, in working out that professional education, which had so far been acquired, and must now be completed, by hurried and broken snatches. The Sybaritic student of the present day, propped up on all sides by protectors and by lecturers—provided with means, and glutted with help—who flies, in despair, at the difficulties that overwhelm him, to the friendly arms of the *Grinder*, may blush, perhaps, to read how Mr. Johnson struggled to obtain an education, unsupported by money, unassisted by friends, unaided by those manuals, plates, and woodcuts, which, professing to facilitate, appear to supersede exertion, and form at once the refuge and the ruin of complaining indolence. But "heaven helps those who help themselves," and so thought, or seemed to think, the subject of this Memoir.

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He apologises for the style, hinting that the maritime adventurer is precluded not only from a liberal communication with books, but confined for the most part to a limited and peculiar class of society—he fears that the critic (to whom he pays a compliment more just than common, a compliment, perhaps, based on a prophetic consciousness that himself would rank high in the class hereafter,) may detect some inaccuracies and much roughness—he deprecates censure on the natural ground that he had been compelled to write in a desultory manner, often on a rude and boisterous element, and continually interrupted by professional pursuits—and he winds up his first preface, as, in after life, he was apt to do many a page, with a poetical quotation :—

> "Far from the Muses' academic grove,
> 'Twas his, the vast and trackless deep to rove.
> Alternate change of climate had he known,
> And felt the fierce extremes of either zone,
> Where polar skies congeal th' eternal snow,
> Or equinoctial suns for ever glow :
> From regions where Peruvian billows roar
> To the bleak coast of savage Labrador."

Falconer's Shipwreck might fairly be imagined to form part of the library of a sailor, himself not indisposed to worship at the altar of the Muses. In his subsequent writings will be found many passages taken from it, as well as from Pope's translations of the Iliad, and the Odyssey. It cannot be said of Johnson, as Pope said of himself, that he

> Lisped in numbers, for the numbers came ;

but if he had not the inspiration, he imitated the manner and he admired the metre of the master.

Some account of his first work, unknown as it must be to the majority of those who became acquainted with his later ones, may not be altogether out of place. An author in his maturity is a different sort of person from one at his first start in life, and we feel as curious to see him in both aspects, as to look at the portrait of some great man at different ages.

Mr. Johnson tells us that he sailed from Cork in May, 1803, in His Majesty's ship Caroline, of 36 guns. She bore, in sealed orders, the declaration of war against France, and had orders to detain all vessels belonging to the Batavian Republic. The first place at which they touched was Madeira, and, as that Island still has claims on our attention, we are disposed to introduce Mr. Johnson's earliest impressions of it. As a London

physician, we know that he thought highly of it, and sent many consumptive patients to it.

"At day-light this morning, we found ourselves close in with the north-east point of Madeira; and as the sun arose, the whole prospect of Funchal, and the surrounding villas, churches, &c., burst upon our view. This bay has a truly romantic and beautiful appearance. The town (the houses of which are all white and look remarkably well) lies at the bottom of the bay; and the ground forming the extremities of the latter, rises at first with a gradual, and afterwards with a very steep ascent, in the form of an amphitheatre. From the sea up the steep part, the whole is covered with vineyards, villas, orangeries, churches, and convents, rising in gradation, and forming a most picturesque landscape; while the steep cliffs, raising their fantastic and wood-clad summits above the clouds, majestically crown the whole."

They found, on entering the town, that it was like most other Portuguese cities, handsome enough *outside*, but disgusting *within*.

"The streets were narrow and dirty; the houses high and inconvenient; with the inhabitants corresponding, ragged though tawdry, and dirty though proud. Englishmen in general, when they get into a Catholic country, immediately visit the convents, monasteries, and churches; not, I believe, through any particular veneration for religion, but sometimes to satisfy an idle curiosity; or perhaps (which is worse) to have a sneer at their superstition. However that may be, we left very few places of the above description unexplored. They seem very glad at the convents to see an Englishman; when they immediately exhibit their artificial flowers, and other curiosities, which he buys at an exorbitant price: for, however the English may be excelled in gallantry by their more polite neighbours, yet, when pecuniary affairs are on the carpet, I'll answer for it they will have the preference even among the fair sex."

After giving an account of the appearance and manners of the natives, with other matters which, though amusing, are irrelevant to our present purpose, Mr. Johnson makes a brief remark on the climate and salubrity of the island. After observing that a great number of invalids with pulmonary complaints resort to it, he states:—

"It is not, however, exempted from fevers and other continental diseases; for I was told by an English physician, a resident on the island, that during the months of September and October, 1802, it had been visited by the same epidemic catarrhal fever which made such ravages in the months of December, January, and February following, in England and on the continent."

The epidemic influenza did not spare Madeira, and we may safely say, that wherever there is a humid atmosphere, and vicissitudes of temperature occur, a febrile catarrh will never be entirely unknown.

We shall not pursue the voyage very circumstantially. At 1 P.M. of the

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in the Hoogly. We are not aware if provisions continue as reasonable as they were in 1803. Then, three or four pine-apples cost only an ana, or 2d English, and other things in proportion. Fowls and ducks two rupees, or 5s. per dozen; geese three rupees, or 7s. 6d. ditto; and all other species of stock equally cheap.

The river is, or was, greatly infested with alligators, of which Mr. Johnson gives a lively account.

"A creek about a mile to the northward of the village, has been the haunt of one, who for many years has rendered himself formidable to the neighbourhood, by his depredations and enormous size, being, it is said, 28 or 30 feet in length. Two of us having landed late in the evening at Kedgeree, found it very difficult to prevail on some of the villagers to accompany us across this creek, to Mr. Jackson's, the English resident, who lives about two miles from thence. On our way along the banks of the river, we at one time, near this creek, heard a rustling noise among the jungle; at which our guides seemed so much affrighted, that they were on the point of taking to their heels, and leaving us to find our way as we could. We did not know the cause of this panic until we got to Mr. Jackson's; when we were informed, that only two nights before this, a man had been destroyed by an alligator at the very spot where we heard the rustling noise. Some time after this, I purchased a young one, about four feet in length, from a fisherman who had caught it in his net. Its figure exceedingly resembles the guana; and it likewise bears a considerable similitude to the lizard: it could run but slowly along the decks, with its lower-jaw close to them; and on presenting a stick, it would snap at, and lay hold of it very readily. The extent to which it would open its mouth on these occasions, could not possibly be effected by the falling of the lower jaw alone, which, as I said before, it kept nearly in contact with the decks: the two jaws therefore, in this operation, seemed to recede from each other like the blades of a pair of scissors when opening. As I conceived that this appearance might possibly give rise to the old opinion, that the upper-jaw of the crocodile was moveable, I examined particularly the head of this one after its death. In the first place, there was no joint or motion between the upper-jaw and the head, as the Jesuits at Siam, who dissected this animal, have justly remarked: but they have not (if I recollect right) taken notice of any peculiarity in the lower jaw's articulation with the bones of the head, which is different from that of any other animal with which I am acquainted. Here, instead of the *head of the under jaw-bone being received* into a cavity in the bones of the skull, (as I believe is generally the case,) it was, on the contrary, *hollowed out*, to receive an articulating process from the skull; as if the former was meant to be the fixed point, and the latter the moveable one. The fact is, that when the animal is opening his mouth to any great extent, while the lower jaw falls, the strong muscles on the back of the neck *draw backwards the head, and raise the upper-jaw at the same time:* this, in all probability, first suggesting the idea of the mobility of the crocodile's upper-jaw. Here, as usual, nature has artfully adapted the structure to the peculiar functions of the animal. The alli-

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and unruffled as possible: cold bathing, indeed, gives a temporary relief, but this interval is generally succeeded by a more virulent attack than before. It is said, that hair-powder dusted over the skin gives the most permanent ease.

In November they returned to Bengal, anchored again in the Hoogly, and found a great mortality prevailing among the Indiamen lying there. A sketch of the fever is backed by exhortations to temperance and continency, and an apt allusion from the Odyssey to those Syrens whom the navigator encounters in every port, and who charm but to betray on every shore.

> "Their touch is death, and makes destruction please.
> Unblest the Youth whom folly leads to stay
> Nigh the curst shore, or listen to their lay."

Among the lions of Calcutta was, and probably is, that fatal spot, in the old fort called the *Black Hole*—a place about eighteen feet square, where, in 1756, the brutal Soubah of Bengal confined Mr. Holwell and 145 others, from eight o'clock in the evening till six the next morning. Most persons have heard of the Black Hole of Calcutta; many have a general notion of the horrible effects of confining many persons in it; but such a picture as this, physiological as well as striking, of the effects of extreme heat, and of an atmosphere deprived of oxygen upon the human body, is, we conceive, new to the majority of the present generation.

"While standing here, I could not help retracing, in imagination, the heart-rending scenes of that bloody tragedy, which fancy painted in glowing colours, while it execrated the monster who caused it to be perpetrated. The leading particulars of this horrid event are the following:—

"It was about eight o'clock at night when these unhappy persons were crammed together in a situation where no air could reach them, being open only to the West, by two windows, strongly barred with iron, and from which they could receive scarcely any circulation of fresh air. They had been but a few minutes confined, before a profuse sweat broke out on every individual, attended with an *insatiable thirst*, which became the more violent as the body was drained of its moisture. It was in vain that they stripped off their clothes, or fanned themselves with their hats. A difficulty in breathing was next observed, and every one panted for breath. Mr. Holwell, who was placed at one of the windows, accosted the sergeant of the guard, and endeavoured to excite his compassion; he drew a pathetic picture of their sufferings, and promised to gratify him in the morning with a thousand rupees, provided he could find means to remove some of his people into another place of confinement.

"The Indian, allured by the promise of so mighty a reward, assured him that

he would use his utmost endeavours, and retired for that purpose. What must have been the impatience at this time of these unhappy objects! In a few minutes the jemmidar returned; but the *tyrant*, by whose order alone such a step could be taken, was asleep, and no person durst disturb his repose! The despair of the prisoners now became outrageous; they endeavoured to force open the door, that they might rush on the swords of the monsters by whom they were surrounded, and who derided their sufferings; but all their efforts proved ineffectual. They then used execrations and abuse to provoke the guard to fire upon them. The jemmidar was at length moved to compassion; he ordered his men to bring some skins containing water, which, by enraging the appetite, only served to increase the general agitation; there was no way of conveying it through the two windows but by hats, and this mode of conveyance proved ineffectual, from the eagerness and transports of the wretched prisoners, who struggled for it in fits of delirium! The cry of water! water! issued from every mouth. The consequence of this eagerness was, that very little fell to the lot of even those that were nearest the windows; and even those who were esteemed the most fortunate, instead of finding their thirst assuaged, grew more impatient. The confusion soon became general and horrid; all was clamour and contest; those who were at a distance endeavoured to force their passage to the window, and the weak were pressed to the ground, never to rise again! Mr. Holwell observing now his dearest friends in the agonies of death, or dead, and inhumanly trampled on by the living, and finding himself wedged up so close as to be deprived of all motion, he begged, as the last mark of their regard, that they would, for one moment, remove the pressure, and allow him to retire from the window and die in quiet. Even in such dreadful circumstances, which might be supposed to level all distinctions, the poor delirious wretches manifested a respect for his rank and character; they forthwith gave way, and he forced his passage into the centre of the place, which was less crowded, because by this time, about one-third of the number had perished, while the rest still pressed to both the windows. He retired to a platform at the farther end of the room, and lying down upon some of his dead friends, recommended his soul to Heaven. Here his thirst grew insupportable; his difficulty in breathing increased; and he was seized with a strong palpitation of the heart. These violent symptoms, which he could not bear, urged him to make another effort; he forced his way back to the window, and cried aloud *Water! for God's sake!* He had been supposed already dead by his wretched companions; but finding him still alive, they exhibited another extraordinary proof of regard to his person. *Give him water!* they cried; nor would one of them attempt to touch it until he had drank! He now breathed more freely, and the palpitation of his heart ceased; but finding himself still more thirsty after drinking, he abstained from water, and moistened his mouth, from time to time, by sucking the perspiration from his shirt sleeves, which tasted soft, pleasant, and refreshing. The miserable prisoners now began to perceive that it was *air*, and not *water*, they wanted: they dropped fast on all sides; and a pungent steam arose from the bodies of the living as well as those of the dead, volatile as hartshorn.

"Mr. Holwell, being weary of life, retired once more to the platform, and stretched himself by the Rev. Mr. Bellamy, who, together with his son, a young Lieutenant, lay dead, locked in each other's arms! In this situation he was soon deprived of sense, and seemed to all appearance dead, when he was removed, by one of his surviving friends, to one of the windows, where the fresh air brought him back to life.

"The Soubah being at last informed that the greater part of the prisoners were suffocated, inquired if the chief was alive: and being answered in the affirmative, sent an order for their immediate release, when *no more than twenty-three survived out of one hundred and forty-six*, who entered this prison!!! Calcutta was re-taken the next year, and the inhuman Soubah was soon afterwards deposed, and *murdered* by his successor."

The ship now left Calcutta, and the crew suffered from dysentery and fever. Mr. Johnson himself was attacked by the former, and forty-two years afterwards, when sinking under the same complaint at Brighton, he referred to his illness in the Ganges, observing, that he little thought he should be carried off in England by what he had recovered from in India. Happily, the future is shut from our sight, or indifference and despair would often supersede those laborious efforts which procure for ourselves fortune and fame, advance civilization, and benefit our species. The sickness in the ship afforded Mr. Johnson an opportunity of observing the good effects of mercury in such disorders in hot climates, and this observation was the nucleus of his work upon that subject. Perhaps he rather overrated those effects, and contracted a predilection for the active exhibition of that dangerous, though valuable, drug, which was reduced to a juster estimate in later life.

From Saugur roads, the Caroline conveyed the fleet of homeward-bound Indiamen till abreast of the Andaman Islands, when she left them to pursue their voyage, chased a privateer, and took her. So shabby, however, was her conduct, that, in the most unhandsome manner, she poured a gratuitous broadside into the Caroline, in the act of hauling down her colours. Of course it was not returned.

Their destination was once more Bengal, and the return to it along the Malay coast, and the shores of the Andaman Islands, affords an opportunity for much varied and charming description. Another privateer was taken, and the Ganges reached, the ship lying in the river till the 9th of March, when a second fleet of Indiamen was conveyed to the Andamans, and the Caroline hauled up for Madras. The voyage, owing to baffling winds, occupied thirty-five days. From Madras to Masulipatam, and from Masulipatam to Madras, were trips that filled up the time till June, the only

variety being scorching winds, suffocating clouds of dust, tempests, and thunder-storms, and an accident by which three men were drowned, and fourteen dreadfully mangled.

Early in August, 1804, orders were received to victual for six months, and take charge of the China convoy, then collecting at Madras. Three other men-of-war were added, as an attack from the French was apprehended. On the 13th, they set sail from Madras-roads—early in September they entered the Straits of Malacca—were again visited, and one of the fleet struck by, lightning—saw several water-spouts—and, on the 13th, anchored in Malacca Roads. The Malays, it is well known, are very dangerous, when under the influence of opium, they run *a-muck*, with their poniards, called kreeses, or kresses, stabbing every one they meet.

"It is said these weapons are poisoned with the celebrated juice of the Upas-tree, but I believe very few of them have this property. I was once bargaining with a Malay for one of those kresses, which he said was deadly poisoned, and in drawing it out of the scabbard, cut myself between the fore-finger and thumb, at which I was not a little alarmed; an old man, however, who was standing by, opening a leaf of betel, took out a piece of chunam and applied it to the part: whether this had any effect or not I cannot tell, but I felt no more of the cut.

"It is probable that the greater number of their kresses are poisoned, merely by heating them red hot, and then plunging them into lime juice; the rust thus produced on the surface, and in the grooves of these weapons, leaves a most dangerous wound; not, however, so dreadfully fatal as the gum of the celebrated Upas-tree is said to be.

On the 16th of September the fleet started from Malacca, and in two days arrived at the straits of Sincapore. On the 22nd they quitted that, and passed a guano rock, Pedra Branca, where the Chinese seas commence. On the 2nd of October they were overtaken by a typhoon. A "great wind" (Ta-fung,) indeed, it seems to have been, but it carried them to China notwithstanding, and on the 7th of October, after many hair-breadth 'scapes, we find them in the mouth of the Tigris river. While they lay here, in Lintin Bay, with a pleasant country, a delightful sky, and an ample supply of fish, flesh, fruit, and vegetables, the sick became more numerous every day. On this point, Mr. Johnson remarks:—

"The principal complaints among our seamen in China, were intermittent fevers, fluxes, and some liver complaints. We had often from sixty to eighty men at a time, unable to do duty at this island, though no particular cause appeared why we should be so unhealthy, unless it was occasioned by the sudden transition from an Indian climate to this one. There was only one small tank on this side of the island, which was otherwise hilly, and the soil dry and

gravelly; the air was cool and agreeable, and very little rain fell during our stay here: we, nevertheless, became very sickly, as did the crews of the Indiamen at Wampoa; which last circumstance, indeed, is less to be wondered at, as Wampoa is surrounded by extensive marshy grounds and paddy-fields, which might tend to bring on intermittents and fluxes. But why we should be sickly, is not easily accounted for, as the Dedaigneuse frigate, which lay at Macao, thirty miles from us, continued perfectly healthy during the whole of our stay in China. Here, therefore, as in the Ganges, the higher up the river a ship proceeds, the more likely is she to become sickly.

"It may here be proper to remark that, in the Grampus and Caroline, when the bark was all expended on the numerous agues, and different kinds of intermittents that occurred, the Surgeons had recourse to calomel, which cured the diseases; but those who were cured in this manner, were almost invariably attacked with the same complaints again, when the influence of the mercury was completely gone off. This seldom happened with those who were cured by bark."

The European public has lately become acquainted in some measure with the Celestial Empire, and the sayings and doings of Commissioner Lin excited, at the time, no small degree of merriment. The time, however, is past, when either Her Majesty's Government or that of the East India Company would commit such an act of poltroonery as the following.

"The probable consequence of killing a Chinese would be this; that the Viceroy of Canton would, first of all, seize on the chief Supercargo, or, as he is here called, the 'Tipan;' and if he thought the business likely to prove very serious, perhaps all the English would be arrested; the man who committed the crime would then be demanded; for the Chinese have no idea of making a distinction between accidental and premeditated murder; as was fatally exemplified in the case of the poor gunner of an Indiaman some years ago, who was given up, because the wad of a gun, fired by the command of an officer, happened to strike a Chinaman in a boat at some distance, and occasion his death. It has never been known what became of the poor fellow; some have imagined that he was bow-stringed; while others think that his eyes were put out, and that he still lives an imprisoned victim to the narrow policy of the Chinese government."

We make a skip to Canton, of which we have a very lively account. We have imported much from Asia, and the "artful dodgers" of our metropolis are not so original as they may think.

"The streets of Canton are so narrow, and the concourse of people so great, that it is no very easy matter to make one's way through them in the day-time. These circumstances are indeed very favourable to a certain class of Chinese pick-pockets, who contrive to make out a livelihood by watching Europeans when they leave the factories, and following them until they see them in a throng

of people, when they generally manage to pluck out their pocket-handkerchiefs, and sheer off with the booty. But this is not all: if they see an European of diminutive size, or seemingly weak, timid, or alone, and at any distance from the factories, three or four of these fellows will seize him in the middle of the street, and instantly rifle him of everything he may happen to have about him at the time; the people in the shops tamely looking on, or perhaps applauding the rascals if they execute their manœuvres very adroitly! To a scene of this kind I was once an eye-witness; when another officer and myself prevented a gentleman of the G——s from being despoiled by these miscreants. They had seized upon him, pinioned him, and were on the point of stripping him, when we hove in sight, and forced them to abandon their intended prey."

It is to be hoped that an improvement has taken place in ship's crews since 1804.

"The following anecdote, related by a Captain of an Indiaman, and which, he said, happened under his own inspection, will give some idea of the manner in which the three days' leave is too commonly spent:—Among a party of sailors to whose turn it came to have leave for Canton, there was found one, who (in the sea phrase) had *bowsed up his jib* rather too much in the course of the morning. His messmates, however handed him into the boat, and took him along with them to town. Here he plied the arrack bottle with such assiduity during his stay, that, in fact, at the expiration of his leave, the party brought him on board in full as good *sailing trim* as when he left the ship. A few days afterwards, when his intellects got a little clear, and the hands were turned up to move the ship to the second bar, the sailor went aft and complained to the Captain, that he had not yet had his turn of leave to Canton, peremptorily insisting, that, to the best of his recollection, he had not been over the ship's side since he left Gravesend! so complete a state of intoxication had he been in during his trip to Canton."

The stay at Canton was succeeded by a sail to Macao, where they passed a merry Christmas. On the 5th of January, 1805, with a stiff breeze that came down cold and bleak from the mountains, they gladly took leave of a country they had sought with such avidity a few months before—a not unusual sample of the "never is but always to be blest" principle of the human mind.

From China the fleet went to Prince of Wales's Island, where a severe attack of liver-complaint compelled Mr. Johnson to quit the ship and remain for some months. It afforded him an opportunity of seeing everything worth looking at, writing an agreeable account of what he saw, composing a little poetry after the manner of Darwin, and not only giving a sketch of the liver-complaint, but what is better, getting rid of it.

In April, 1805, Mr. Johnson once more sailed for Madras, and bade adieu "to the pleasantest settlement in India—Prince of Wales's Island." He

arrived at Madras Roads on the 21st of the month, to leave it on the 2d of June, for the purpose of rejoining the Caroline at Vizagapatam. From many remarks upon many things, we select a few upon two subjects—sleeping in the open air, and the means of preserving health in India. For the first, under certain reservations, Mr. Johnson was an advocate. He thought it a wise and salutary plan to keep the awnings spread during the night, and to allow the men to sleep under them, especially in harbour, and in hot weather. This permission, however, he would withhold under the following circumstances :—

"First,—In the rainy season, or at the shifting of the monsoons, when the coolness of the air renders sleeping below a matter of little inconvenience.

"Secondly.—In those seasons of the year, when heavy dews fall during the night, and when awnings cannot be kept spread, to secure the crew from their baleful influence.

"Thirdly.—In rivers and other situations, where putrid exhalations are occasionally blown off from the swamps or low muddy shores, contiguous to the anchorage; and which should be guarded against, by sleeping below, and using large smoke sails."

Towards the preservation of health, he was of opinion that the practice of pouring cold water over the head every morning very materially contributes; and we cannot doubt that it does so in all climates. He approved (in hot countries) of frequently washing the lower decks—of paying great attention to the awnings both of boats and ships—of interdicting as much as possible labour in the sun—of a good but moderate diet—of wine in preference to arrack. He disapproved of permitting the men to go ashore—of sending them on expeditions in open boats—and of allowing them to attend funerals, a deadly office in the Tropics.

"In all cases where it is practicable, the ships which visit these unhealthy countries should anchor at as great a distance as possible from the shore; or if obliged to anchor near marshy grounds or swamps, especially during summer, or in hot weather, and when the wind blows directly from thence, the ports which would admit the noxious land winds ought to be kept shut, especially at night.

"Or if the ship rides head to wind, a large smoke-sail should be hoisted forward, that the smoke from the galley in ascending, might carry up and disperse the swampy shore effluvia.

"The best preservative against the mischievous impressions of a putrid fog, or of a marshy exhalation, is a close, sheltered and covered place, in which there are no doors or windows facing the swamps. Persons on board any ship whatever are much more safe, and their situation is much preferable to that of those who make distant inland excursions in small boats upon the rivers, and who are for the most part ignorant of the cause of those maladies which destroy them. The intolerable heat at noon often obliges such persons to go in a manner half naked;

while a free and plentiful perspiration issues from ever pore. A near approach to putrid swamps at this time, is apt to produce an immediate sickness and vomiting: and afterwards probably a fever. But if they happen to pass them at night, or lie near them in an open boat, the air from those swamps is perceived to be quite chill and cold; inasmuch as warm thick clothing becomes absolutely requisite, to guard the body against the impressions of so great an alteration in the air, and against its cold and inclement quality; for the effects of it then, even on the most healthy and vigorous constitution, is frequently a chilling cold fit of an ague, terminating in a fever, with delirium, bilious vomitings, a flux, or even death itself."

Appended to these observations we have the "Signs of an Unhealthy Country," which, whether coming from or sanctioned by one who had experience of so many countries, must be deemed not wide of the truth.

"1st. A sudden and great alteration in the air at sunset, from intolerable heat to chilling cold. This is perceived as soon as the sun is down; and is for the most part accompanied with a very heavy dew: it shows an unhealthy swampy soil, the nature of which is such, that no sooner the sunbeams are withdrawn, than the vapours emitted from it render the air damp, raw, and chilling, in the most sultry climates; so that even under the equator, in some unhealthy places, the night air is very cold to an European constitution.

"2nd. Thick noisome fogs, chiefly at sunset, arising from the valleys, and particularly from mud, slime, or other impurities. In hot countries, the smell of these fogs may be compared to a new cleaned ditch. Diseases, therefore, arising from this cause, generally take place in the night, or before sunrise.

"3d. Numerous swarms of flies, gnats, and other insects, which attend stagnated air, and unhealthy places covered with wood.

"4th. When all butcher's meat soon corrupts, and in a few hours becomes full of maggots: when metals are quickly corroded on being exposed to the air; and when a corpse becomes intolerably offensive in less than six hours: these are proofs of a close, hot, and unwholesome country."

It cannot but be noticed, that those situations are among the most pestilential where heat by day is succeeded by cold damp fogs or exhalations at night. And in every quarter of the world, we apprehend that the concurrence of such circumstances is invariably prejudicial to the human frame. On the banks of the Hoogly it produces dysentery—on those of the Niger the deadly fever of Africa—in the fens of Lincolnshire it is redolent of agues—and by the side of the Thames it is fruitful of diarrhœa and rheumatism. The greater the contrast between the diurnal heat and nocturnal chill, the more pernicious the result, and although we would not be understood to deny that the more deadly consequences flow from specific miasms, we entertain no doubt that much, at the least, is due to the impression of damp and cold on the body, at once excited and exhausted by antecedent heat.

From June till October, 1805. Mr. Johnson was cruising on the Coromandel Coast, of which he gives us an account, together with one of the Island of Ceylon. The pearl-divers, of course, come in for notice. Accustomed to dive from their earliest infancy, these Indians fearlessly descend to the bottom in five or ten fathoms of water.

"A diving stone and net are connected to the boat by two ropes. The diver putting the toes of his right foot on the hair rope of the diving stone, and those of his left on the net, seizes the two cords with one hand, and shutting his nostrils with the other, plunges into the water. On reaching the bottom he hangs the net round his neck, and collects into it the pearl shells as fast as possible, during the time he finds himself able to remain under water, which is usually about two minutes. He then resumes his former posture, and making a signal by pulling the cords, he is immediately lifted into the boat. On emerging from the sea he discharges a quantity of water from his mouth and nose, and some discharge even blood; but this does not prevent them from diving again in their turn. When the first five divers come up, and are respiring, the other five are going down with the same stones."

The most skilful divers from the Malabar coast, are able to dive without the stones, and, for a reward, will remain under water for the space of seven minutes. So at least it is said.

In October, 1805, ill-health compelled Mr. Johnson to set sail again for Bengal, and on the 21st he reached the Ganges, at the time when Calcutta was plunged in gloom by the death of the Marquis Cornwallis. On the 3rd of November, at daylight, his Majesty's ship Medusa weighed anchor for England, and Mr. Johnson bade a final adieu to India. His feelings took the form of verse,—he modestly disclaims the title of poetry—recollections of the scenes he quits are merged in those of his youth—and the inspiration of his muse, averted from the burning clime of the East, points to his native skies.

Those skies were seen on the 26th of January, 1806, when the Medusa reached the Lizard, having run from the Ganges, a distance of thirteen thousand eight hundred and thirty-one miles, in eighty-four days, two of which were spent at anchor in the roads of St. Helena:—perhaps the most rapid passage that has ever been accomplished.

The preceding account of the "Oriental Voyager" may seem disproportioned to its merits. But it comprises the history of three important years of Mr. Johnson's life; then it was he acquired his taste for varied and discursive information—tested his powers of description—made those observations on which he founded his work upon Tropical Climates—consolidated and confirmed his habits of industry—and, unfortunately, contracted the

germs of a disease which saddened his future years, and doomed him to a late, though still a premature death.

His return from the East, somewhat shattered as he was in constitution, by dysentery, was a return to the dissecting and the lecture-room. The privateer and the Dutchman contributed their quota to the fees, and his prize-money enabled him to enter as a student at Guy's and St. Thomas's, where he formed the acquaintance and gained the esteem of Sir Astley Cooper, Dr. Curry, and the other ornaments of that celebrated School.

His professional education, so far as attendance on lectures went, was now completed. Desultory as it was, from the necessity of the case, we cannot but own that it was judicious in design and as perfect as circumstances admitted in its execution. Nor can we fail to admire the undaunted resolution of the man. Saving his few pounds that they might be spent on knowledge—returning when they were spent, to work and save again for the same object—and through the long period of eight or ten years, with every interruption, with those inducements to professional indolence that conquer and debauch the resolves of so many, with the obstacles (none know who have not felt them) of poverty and ill-health, having but one aim,—his education—and attaining it.

In the Autumn of 1806, he re-visited his native country, and became acquainted with Miss Charlotte Wolfenden, of a highly respectable family, in Lambeg, County of Antrim. This lady he shortly married, and she now survives him.

Soon after his marriage, he was engaged in attending the prisoners of war, in the depôts at Plymouth and Portsmouth. Here he made the most of his opportunities. In 1808, he was appointed to the "Valiant," of seventy-four guns, in which ship he remained nearly five years, was, we believe, in several engagements, and saw a great deal of active service.

The Valiant was one of the two line of battle ships that forced their way into Basque Roads, between strong batteries, and burnt the French fleet. His time in the Valiant was neither unprofitably nor unpleasantly spent. He saw much, made some friends, got, from the ship being the *worst* sailor in the squadron, a round sum of prize-money, and would often recur in after years to the stirring incidents of this period. It was in the Valiant that, in 1809, he was present at the disastrous expedition to Walcheren. He narrowly watched the progress of disease on those pestiferous shores, and his account of what he observed, in after conversations, was striking to the last degree. He did not observe only—he *felt*. He was attacked with

the ague, and although he threw it off tolerably well at the time, he was seized, like many others, years afterwards, and, without ostensible cause, with the same disease in a dangerous form, in London.

On quitting the Valiant he remained for a short time in the neighbourhood of Gosport. He was not idle. The notes that he had made in his voyage to India—notes that he had composed with diligence and preserved with care, were brought out, compared, corrected, and expanded into his principal work—*The Influence of Tropical Climates on European Constitutions.* But it is not enough to write a work—we must print it. This sine quâ non is frequently the difficulty, and perhaps many a production has missed immortality from the bad taste or prudence of a bookseller. This essential personage shook his head at the "Tropical Climates," and had not its author treasured up his prize-money for this very purpose, he would probably never have attained either reputation or a name. How subtle are the links that connect the chain of human fortune. If he had not saved from his pay to study, he would not have won the good opinion of Sir Gilbert Blane, nor been appointed to the Caroline—if he had not got the ship, he would not have enjoyed the opportunities in the East, of which he so decisively availed himself—and if he had not fallen in with a privateer, and husbanded his prize-money, those opportunities would have been, after all, profitless.

The publication of the work at once conferred on him a high character, and, immediately on its appearance, he was appointed flag-surgeon, with the late Sir William Young, then in command of the North-Sea Fleet. He did the duty of physician to the fleet in a most inclement season, with constant hurricanes, and vessels foundering on all sides. So pleased was Sir William Young with his surgeon that he extended to him his patronage and friendship to the last hour of his life. Sir William Young, indeed, was one of the two or three friends, whom alone he knew, and on whom he relied, when he afterwards embarked his all in the Metropolis.

The popularity and extensive sale of the work *On Tropical Climates*, render an elaborate notice of it needless. At the same time, some interest may attach to a few particulars respecting it, and a sketch of its main features may be pardoned.

The first edition was published in 1812, the sixth in 1841, after an interval of twenty-eight years. More than a quarter of a century had already set its seal upon its value, when that last edition was committed to the press. We may fairly presume that a work ushered in without pretension, established without patronage, and enduring amid the remark-

able changes that have revolutionized medicine itself, must have been founded on observation, and contain some elements of truth. It is singular, indeed, how few of the author's original doctrines have been subverted by time, or practices condemned by subsequent experience, the more singular, as the work was substantially written when he was not twenty-four years of age. This is another instance to be added to the striking list adduced by Mr. D'Israeli of reputation achieved in early life. That is, indeed, the period at which the energy is greatest, and, perhaps, the originality as well as boldness of the mind's conceptions most decided. In later years our judgment ripens, because our accumulated knowledge is increased, but caution begins rapidly to supercede that enthusiasm, which is mostly the source of the greatest actions.

One main feature in the work is its physiological basis. At its commencement the author considers, and in a great degree confutes, the notion, that the constitution of man is such as to enable him to defy changes of climate to a degree altogether unknown to other animals. In one sense this is true—in another, it is not. Man is endowed with those reasoning powers which give him in some sort the command of climates, as well as of the elements; but it is to those reasoning powers, rather than to his physical, that he owes this.

Mr. Johnson considers next the comparative advantages of stimulating drinks and water, in the East, and, in opposition to Dr. Currie, he proves theoretically, and asserts practically, the superiority of the latter. Not that he prohibits wine or spirits altogether, but, as a general rule, he maintains that they increase the perspiration, whose excess so greatly contributes to the exhaustion of the European in warm climates.

The sympathy between the skin and mucous membranes, a sympathy which we suppose that we explain, by looking on them as modifications of the same tissue, continuous one with the other, is adduced by Mr. Johnson as one reason for debility of the digestive organs.

"The loss of tone, then, in the extreme vessels of the surface, in consequence of excessive, or long-continued perspiration is, on this principle, necessarily accompanied, or soon succeeded by a consentaneous loss of tone in the stomach, and fairly accounts for that anorexia, or diminution of appetite, which we seldom fail to experience soon after entering the tropics, or, indeed, during hot weather in England. Now this, although but a link in the chain of effects, seems to me a most wise precaution of Nature, to lower and adapt the irritable, plethoric European constitution, to a burning climate, by guarding very effectually against the dangerous consequences of repletion. This view of the subject will set in a

clear light, the pernicious effects of stimulating liquids, operating on an organ already debilitated, (probably for salutary purposes,) and goading it thereby to exertions beyond its natural power, producing a temporary plethora or excitement, with a great increase of subsequent atony."

The Liver plays a great part in the East. People there find out what an imperium in imperio they have in their abdomen. Bilious persons in temperate climates get a sick-headache, a diarrhœa in the Autumn, jaundice, perhaps, or a fit of gall-stones, but even they speak and think of their livers now and then only. In the East, Liver is the one thing considered—its derangements everybody looks for—it consigns to the early grave—it sends back its shattered owner to the shores of Europe before his time. To the Liver, then, Mr. Johnson devotes his attention, and its physiological actions and sympathies are the pivot on which much of his practice turns.

The first effect of a tropical climate on the organ is an increase of the biliary secretion. This is so indisputable, that it is enough to state the fact. Why should it do so? Mr. Johnson attempts to answer the question. We shall not introduce his facts and arguments in detail, but content ourselves with the general announcement of his views. Long as the quotation may be, it is valuable, and contains, in our opinion, the soundest physiological doctrine.

"There exists then between the extreme vessels of the vena portæ in the liver, and the extreme vessels on the surface of the body—in other words, between *biliary secretion and perspiration*, one of the strongest sympathies in the human frame, although entirely unnoticed hitherto, so far as I am acquainted. That these two functions are regularly, and to appearance, equally increased, or at least influenced, by *one* particular agent (atmospherical heat) from the cradle to the grave, from the pole to the equator, will be readily granted by every observer: and that this *synchronous action* alone, independent of any other original connexion, should soon grow up into a powerful sympathy, manifesting itself when *either* of these functions came under the influence of *other agents*, is a legitimate conclusion in theory, and what I hope to prove by a fair appeal to facts. This last consideration is the great practical one: for it is of little consequence whether this sympathy was originally implanted by the hand of Nature at our first formation, or sprung up gradually in the manner alluded to, provided we know that it actually exists, and that, by directing our operations towards any *one* of the functions in question, we can decisively influence the *other*. This is what I maintain; but here I only offer assertions. In a future part of the work I shall bring forward facts and cogent arguments in proof of them. At present let this 'consent of parts' between the skin and the liver, which I shall beg leave to denominate the '*cutaneo-hepatic Sympathy*,' account for the augmented secre-

tion of bile, which we observe on arriving in hot climates, corresponding to the increased cuticular discharge. I shall here offer one practical remark, resulting from this view of the subject, and which will be found deserving of every European's attention on his emigration to southern regions: namely, that as the state of the perspiratory process is a visible and pretty fair index to that of the biliary, so every precautionary measure, which keeps in check, or moderates the profusion of the *former* discharge, will invariably have the same effect on the *latter*, and thus tend to obviate the inconvenience, not to say the disorders, arising from redundancy of the hepatic secretion. To this rule I do not know a single exception; consequently its universal application can never lead astray in any instance. But this subject will be better elucidated, and more clearly explained hereafter.

To proceed. It is well known, without having recourse to Brunonian doctrines, that if any organ be stimulated to *inordinate* action, one of two things must in general ensue. If the cause applied be constant, and sufficient to keep up, for any length of time, this *inordinate* action, serious injury is likely to accrue to the organ itself, even so far as *structural* alteration. But if the cause be only temporary, or the force not in any great degree, then an occasional torpor, or exhaustion, as it were, of the organ takes place, during which period its *function* falls short of the natural range. To give a familiar example, of which too many of us are quite competent to judge:—thus if the stomach be goaded to immoderate exertion to-day, by a provocative variety of savoury dishes and stimulating liquors, we all know the atony which will succeed to-morrow, and how incapable it then will be of performing its accustomed office. It is the same with respect to the liver. After great excitement, by excessive heat, violent exercise in the sun, &c., a torpor succeeds, which will be more or less, according to the degree of previous excitement, and the length of time during which the stimulating causes have been habitually applied. For instance, when Europeans first arrive between the tropics, the degree of torpor bears so small a proportion to that of preceding excitement, in the liver, that it is scarcely noticed; particularly as the debilitated vessels in this organ, *continue* (similar to the perspiratory vessels on the surface) to secrete an imperfect fluid for some time *after* the exciting cause has ceased; hence the *increase* of the biliary secretion occupies our principal attention. But these torpid periods, however short at first, gradually and progressively increase, till at length they far exceed the periods of excitement; and then a *deficiency* of the biliary secretion becomes evident. This is not only consonant to experience, but to analogy. Thus, when a man first betakes himself to inebriety, the excitement occasioned by spirits, or wine, on the stomach and nervous system, far exceeds the subsequent atony, and we are astonished to see him go on for some time, without, apparently, suffering much detriment in his constitution. But the period of excitement is gradually curtailed, while that of atony increases, which soon forces him not only to augment the dose, but to repeat it oftener and oftener, till the organ and life are destroyed?

"Now it is somewhat singular, that this alternation of redundancy and deficiency, or, in other words, *irregular* secretion in the biliary organ, should pass

unnoticed by writers on hot climates. They, one and all, represent the liver as a colossal apparatus, of the most Herculean power, that goes on for years, performing prodigies in the secreting way, without ever being exhausted for a moment, or falling *below* the range of ordinary action, till structural derangement, such as scirrhosity or tuberculisation, incapacitates it for its duty! A very attentive observation of what passed in my own frame, and those of others, has led me to form a very different conclusion; and the foregoing statement will, I think, be found a true and natural representation of the case. I shall afterwards shew, that the secretion in question is frequently below *par*, in quantity, at the very time when it is considered to be redundant—all arising from irregularity and vitiation.

Here, then, we have two very opposite states of the liver and its functions. 1st. Inordinate action, with increased secretion—the periods gradually shortening. 2d. Torpor of the vessels in the liver, with deficient secretion—the periods progressively lengthening. In both cases, the bile itself is *vitiated*. We may readily enough conceive how this last comes to pass, by an analogical comparison with what takes place in the stomach during, and subsequent to, a debauch. In both instances, we may conclude, that the chyme passes through the pylorus into the duodenum, in a state less fit for chylification, than during a season of temperance and regularity. So, during the increased secretion, and subsequent inactivity in the liver, the bile passes out into the intestines deteriorated in quality, as well as superabundant or deficient in quantity.

"In what this vitiation consists, it is certainly not easy to say. In high degrees of it attendant on hurried secretions, both the colour and taste are surprisingly altered; since it occasionally assumes all the shades between a deep bottle green and jet black; possessing, at one time, an acidity that sets the teeth on edge; at other times, and indeed more frequently, an acrimony that seems absolutely to corrode the stomach and fauces, as it passes off by vomiting, and when directed downwards, can be compared to nothing more appropriate than the sensation which one would expect from boiling lead flowing through the intestines. Many a time have I experienced this, and many a time have my patients expressed themselves in similar language. The slightly disordered state of the hepatic functions, which we are now considering as primary effects of climate, and within the range of health, may be known by the following symptoms:—Irregularity in the bowels, with motions of various colours, and fetid, or insipid odour;—general langour of body and mind; slight nausea, especially in the mornings, when we attempt to brush our teeth; a yellowish fur about the back part of the tongue; unpleasant taste in the mouth on getting out of bed; a tinge in the eyes and complexion, from absorption of bile; the urine high coloured, and a slight irritation in passing it; the appetite impaired, and easily turned against fat or oily victuals,—irritability of temper—dejection of mind—loss of flesh—disturbed sleep. These are the first effects, then, of increased and irregular secretion of bile, and will appear in all degrees, according as we are less or more cautious in avoiding the numerous causes that give additional force to the influence of climate. For example: if I use more than ordinary exercise—ex-

pose myself to the heat of the sun—or drink stimulating liquids to-day, an increased and vitiated flow of bile takes place, and to-morrow produces either nausea and sickness at stomach, or a diarrhœa, with gripings and twitchings in the bowels. But a slight degree of inaction or torpor succeeding, both in the liver and intestines, there will probably be no alvine evacuation at all, the ensuing day, till a fresh flow of bile sets all in motion once more. These irregularities, although they may continue a long time without producing much inconvenience, especially if they be not aggravated by excesses, yet they should never be despised, since they, inevitably, though insensibly, pave the way for serious derangement in the biliary and digestive organs, especially in hot climates, unless counteracted by rigid temperance, and the prophylactic measures which I shall carefully detail in the proper place. The reciprocal influence and effects which the hepatic and mental functions exercise on each other, will form an interesting inquiry under the article Hepatitis."

Modern Chemistry has disclosed more facts with regard to the Biliary Secretion, which bear upon the subject. While it is indisputable that the bile acts as a sort of precipitant upon the chyme, throwing down, as it were, the excrementitious portion, and by its soda neutralizing its acidity, it is equally clear that, charged as it is with carbonaceous compounds, it acts as subsidiary to the function of the lungs. Respiration is the more immediate agent in producing and maintaining animal heat, and modern physiologists believe that the act of respiration is less vigorous in high temperatures than in low ones. If this be so, if the lungs act less, in order that the carbon be eliminated, the liver should, or, at all events, *might* act more; another reason why the liver will be stimulated in hot climates. But as that same heat stimulates the skin also, we see at once how it happens that a sympathy is evinced between the two organs. In short, the lungs and the skin are associated in the maintenance and regulation of animal temperature—the lungs and the liver are associated in the separation of the carbon—and perhaps, less obviously, the liver and the skin are associated in the regulation of the temperature too. These physiological considerations founded on data furnished by chemistry and by experiments many years after Mr. Johnson wrote, amply confirm the accuracy of his observations, and strengthen the practical value of his inferences.

Mr. Johnson passes from these preliminary views to consider Fever in General, which leads him to the Endemic Fever of Bengal. After this he takes up in succession the Endemic of Batavia—the diseases of the Mediterranean—the fever of the coast of Africa—and the maladies more peculiar to the Western Hemisphere.

In enumerating these as the contents of the work we are rather referring

to the later editions than the first, which is not just now within our reach. As this memoir does not profess to be purely and critically bibliographical, the taking one edition as a sample of all may probably be pardoned. It is enough to observe, that the portions of the work founded upon his own observation, are scrupulously distinguished from those for which he had to draw upon others. The many quarters of the globe, with the still more numerous diseases incidental to them, that form the subjects of the volume, preclude, of course, the notion that one man or one lifetime could individually grapple with them. But the leading idea, the general spirit that pervades the book, is exclusively Dr. Johnson's, and the aid of others is invoked to illustrate and to expand, what one mind could not produce in its actual form, and completeness, and circumstantiality.

It would be a hopeless, and an useless task, to endeavour to present in any such compass as we must be restricted to, an analysis of the work on Tropical Climates. A physiological as well as a practical spirit pervades it, and we see in it the leading characteristics of the author's mind —clearness of observation—paucity of theory—simplicity of precept—decision of action—and, conjoined with a vigorous independence of thought, that considerate deference to the capacity of others, which, while it marks humility, implies candour and judgment, and is often consistent, in philosophical inquiries, with great strength of understanding. Dogmatism, in fact, is rarely seen, but in those of small experience, or of narrow views.

Nearly six thousand copies of this standard work have been distributed throughout the globe. It is found where streams the pendent of a British man-of-war, or waves the flag of our commercial marine. It is a text-book in the old world and the new, in the Provinces of China and in the West Indian Islands. The sun never sets upon its page, and on its doctrines the lives of countless thousands have been ventured, and of numbers are, this moment, staked.

The best and most complete edition is undoubtedly the last. In the arrangement of that, Dr. Johnson had the valuable aid of Mr. Martin, formerly Presidency Surgeon in Bengal, and Surgeon to the Native Hospital of Calcutta. Mr. Martin informs us in the part of the Preface assigned to him :—

"The materials of the brief sketches now incorporated in Dr. Johnson's well-known work, appeared originally in an official report on the climate and diseases of Calcutta, of which two editions were ordered to be printed at the public cost by the Supreme Government of India.

"These sketches were the result of observations made in the earlier period of my service, with troops engaged in active military operations in some of the most unhealthy countries in India, and in the Burman Empire, during the late war with that State; confirmed subsequently in an extensive hospital and private practice amongst both Europeans and Natives, in the British Indian Capital. The mode of their first appearance was, as I have said, official;—indeed, they were thrown together without care, and in the hurry of excessive professional labour, with the sole view of affording such facts and materials as might assist a public inquiry I then suggested into the health history of Calcutta, and the existing condition of that city and the surrounding country, with a view to their improvement; as I had very early satisfied myself that, if we would effectually attend to the welfare of its vast population, we must adopt measures of correction and prevention in vigorous and systematic form. On this subject, I had previous official and personal communication, first in 1821, and then in 1828, with the Governors-General of India; but it was not till 1835 that effectual measures were taken for a full investigation into the various and important matters connected with the subject."

Of Mr. Martin's contributions it is impossible to speak too highly. The result of two and twenty years' observation in India, we may well suppose they are derived from a varied and vast experience. But it is not experience only they evince. Those who have the pleasure of Mr. Martin's acquaintance can speak to his independent and cultivated mind, his clear views, his patient investigation, and his sound judgment. The portions that he has written are indicative of all these qualities, and are at once lucid and complete analyses of the subjects they embrace. His Sketch of the Climate of Calcutta is one of the most masterly things of the kind.

The manner in which Mr. Martin came to be connected with Dr. Johnson, in this last edition, is flattering to the one and characteristic of the other. Mr. Martin, who was entirely unknown to Dr. Johnson, consulted him on the state of his health, enfeebled by his long residence in Bengal. Dr. Johnson gave the best advice in his power, and was so impressed with a high value of Mr. Martin's opportunities and talents, that he frankly offered to associate him with himself in the editing of an Edition then in the press, and proved a most warm and liberal friend in furthering his professional views.

At the peace of 1814, King William the Fourth, then Duke of Clarence, hoisted his flag in the "Impregnable," 98 gun ship, when Sir William Young retired. Mr. Johnson was so strongly recommended to the Duke, that he was retained, and served with his Royal Highness, while conveying the Emperor of Russia, King of Prussia, and other Potentates to England. The Duke had an attack of his hay-asthma at Boulogne, Mr. John-

son attended him, and the attack was speedily subdued. This and the frank and simple character of his surgeon, so congenial to his own, pleased the Duke highly, and was the foundation of what might almost be called a friendship. At the time, this was shown by the Duke's exerting all his influence to obtain for Mr. Johnson the rank of physician to the fleet. But the King's son was baffled by the First Lord of the Admiralty, and Lord Melville negatived the application.

The Duke of Clarence then, and to the time of his accession, had little personal or political influence. With narrow means, a large family, and a remote chance of the Crown, he could give little to his friends but empty titles and good wishes. To Mr. Johnson he extended both. He appointed him his Surgeon in Ordinary, and ever expressed a warm interest in his welfare. The letters, of which some from the Duke still remain in the hands of Dr. Johnson's family, are rather those of private friends in ordinary life, than such as might be supposed to pass between the Heir Apparent to the English Throne and a subject without rank or influence. As most of the letters refer to events of a private nature, and to persons who might not wish their names brought forward, we shall content ourselves with quoting one on a more public subject,—the death of the Duke of York. Dr. Johnson had written to the Duke of Clarence condoling with him on his loss. The Duke thus answers his letter:—

BUSHY HOUSE,

Jan. 31*st.*, 1827. *Late at Night.*

DEAR SIR,

I am to thank you for your second edition, and your letter of 29th instant. I feel very sensibly your kind interest on account of the mournful event of the death of the ever-to-be-lamented Duke of York. I agree with you entirely that things of this kind teach mankind the will of God and the necessary submission of mortals to the power of the Almighty. How transient power, riches, and even happiness itself—the mighty preparations for the Coronation gone in one day, and the death, though long expected, of my poor brother, are lessons I cannot forget.

I know your esteem for me, and am therefore grateful for your very proper and religious remarks. I am, thank God, in good health, and trust you are equally so. Adieu, and ever believe me,

Dear Sir,

Your's sincerely,

WILLIAM.

It might have been expected that William the Fourth would not forget the friends of the Duke of Clarence. But Kings are surrounded by an atmosphere which is rarely pierced by the simple light of services, and which is too brilliant with the present to exhibit the fading past. At the time when William the Fourth began to reign, one individual decreed the medical appointments of the Palace, assumed a sort of vested right to head and make them, and no man, while he retained his influence and post, could hope, without his patronage, to be made Physician to the King. The list was published, and Dr. Johnson's name omitted. This was "too bad." He wrote himself to His Majesty, and appealed to him to say, whether it was by his command he was excluded. The answer was significant. He was made Physician Extraordinary to the King, in despite of the traditions of College and Court, and of all that back-stairs influence, so readily imagined, so dirty, and so persevering. Monarch and Physician have both passed away—their spirits stand before an awful, and a just tribunal—the idle distinctions, sought or conferred, must be to both an unheeded folly—but if there be a remembrance of the past, who will not say that that remembrance will be saddest, with the Prince who yielded to a paltry clique, and deserted, in some degree, his friend! But let us not do an injustice to one of the kindest and honestest of monarchs and of men. No one, in his rank, has ever displayed less of the selfishness too characteristic of our aristocracy, or been at less pains to repress or conceal, in obedience to the hollow heartedness of class, those generous impulses which stamp the individual a member of the family of man. The

Nihil humanum à mæ alienum puto.

was the practical creed of a Prince, who walked up Piccadilly with an umbrella under his arm, immediately after his accession, and retained the simplicity and single-mindedness of the sailor at the expense of the reserve, and even of some of the dignity of the Sovereign. In the present case, his feelings were displayed in violation of prescriptive forms, and, probably, to the astonishment, perhaps to the horror, of those courtiers who had been accustomed to the polished callousness of George the Fourth. When Dr. Johnson was presented at the Drawing Room, after his appointment, King William took his hand and shook it heartily, addressing to him at the same time some good-natured words of recognition and welcome. This act of unexpected condescension took Dr. Johnson so much by surprise, that he imagined *he* must have committed some flagrant act of inde-

corum, and wrote to apologise for it. The reply, as might have been expected, set the matter in its proper light, and was characteristic of the King.

It may seem that too much has been said, and that the appointment was of too insignificant a kind, to be made a subject of congratulation or regret. Dr. Johnson was not the man to set a high value on the highest honour attainable by professional exertion. His own simplicity of character underrated rather than overrated the distinctions that so many covet, and he expressed and evinced indifference, almost contempt, for the insignia of wealth and rank. But the Duke of Clarence had been a personal friend, to exclude him from the King's medical staff would have been a personal slight, he knew that King too well to believe it could be done by him, and he felt the indignation which every man of spirit must feel, at being made the victim of intrigue. He was too independent to become, or wish to be, a hanger-on at Court, and he left to those who liked them, its suffocating atmosphere and gilded chains. William the Fourth was soon gathered to his fathers. Another reign scouted the man who had so long monopolised and still grasped at power; and, overtaken by neglect, if not by contumely, he crowned an unhonoured age by an unrespected memory.

We have been obliged to anticipate, and we return to events in their chronological order.

When the long war ended in 1814, Mr. Johnson felt that his naval life was run, and that the future must be sought and found on shore. His desire and intention were to practise as a Physician,* for which he was best qualified, both by his general and professional attainments. But to succeed as a Physician he must first be known, to be known must be a work of at least a few years, and during those years of preparation and of trial, himself and his family must live. His resolution was shortly taken, and it proved, as it seemed like to be, a sound and a successful one. That resolution was to address himself at once to Medical Periodical Literature, to build upon it a name, an income, and the power of practising in the capacity he had selected, while, in the interim, he should draw support for those dependent on him, from his half-pay as a naval surgeon, and general practice among his old comrades and brother-officers in a sea-port town. He naturally selected Portsmouth, where he speedily became well known, and

* He had taken out a Scotch degree in the preceding year.

realized for the brief time that he remained and the limited field open to him a very remunerative income.

While serving with Sir William Young, in the North Sea, he had published some papers in the "*New Medical and Physical Journal.*" Of this he now became the Editor, in conjunction with Drs. Shearman and Palmer. In 1816, it appeared under the title of the Medico-Chirurgical Journal, in a monthly form, comprising about 100 pages, and divided into four parts, which were devoted to Original Communications,—to a comprehensive Analytical Review of Medical Literature,—to Selections, principally from the Foreign Journals,—and to Medical Miscellanies. The Journal itself met with no great success, so far as money went, but it answered Mr. Johnson's purpose. Though nominally one of three Editors, he had had, and that by choice, the lion's share of the work—he had tried and skilled his prentice-hand on criticism—he had made himself a name which, although not great, was still a name—he had accumulated and was accumulating knowledge—he had proved to himself that he could win the confidence of patients, and that the rough frankness of the sea could soften into the milder requirements of the shore—he had sustained himself the while—and now the time was come for doing what he had resolved to do, and what all that had been done was intended only as the means to help him to.

In 1818, he bade adieu to Portsmouth, and took a house in the Albany Court-yard, in London, becoming a Licentiate of the College of Physicians in 1820. He had indifferent health—one friend in the metropolis, Sir William Young—a wife and five children—something less than five hundred pounds—and his half-pay, under a hundred a year. The risk was palpable, ruin might seem, even to a sanguine vision, looming in the distance, but what are these to an undaunted will, and a consciousness of power? Like Sheridan he felt, when his first speech failed, that—"Damn it, it was in him, and it *should* come out," and like Sheridan he found the conviction the means of its own realization.

We have said that he took a house in the Albany. He took at the same instant a bolder step—he changed the Monthly Medico-Chirurgical Journal into the Medico-Chirurgical Review, and published it thenceforth as a Quarterly Journal, at his own sole risk and expense. He was prompted by his courageous spirit—necessity—the conviction that a good analytical Review ought to emanate from London—and the ambition to prove, in his own person, that that conviction was a true one. What

visions of reputation and of profit dimly appeared in the future, we may conjecture, but we cannot tell.

Of the progress and the fortunes of that Review we shall give a brief account, while for a time we desert his own.

The Review was still conducted on the same plan, but by degrees it might be observed, that the portion devoted to Original Communications became diminished, whilst that reserved for analysis of works became extended in proportion. Though this, of course, increased greatly the labour of the Editor, (it being far more easy for him to insert an original report of any case that might be sent to him, than to sit down and condense the pith of some long-winded work into as many pages as there were volumes in the original,) it was persevered in, and met with signal success. The number of subscribers augmented rapidly, and, though a greater quantum of *concentrated matter* could be seen in no equal number of pages in any medical work in Europe, the ardour which at that time (1819) pervaded the world of medical science, the number of new and important publications daily issuing from the public press, and the rapidly increasing list of correspondents, rendered it necessary to enlarge the limits of the Journal. The editor considered that the British Metropolis should send forth a respectable Quarterly Register, inferior to none; and accordingly exerted himself to the utmost to place his own in that position.

Success attended his efforts;—his health, which had been for some time greatly impaired, improved;—and there began to appear some prospects of professional success in the sphere which he had lately selected. At the termination of the first year of the Quarterly Series he was enabled to write as follows:—

"The first volume of the Medico-Chirurgical Journal has closed, under an expression of public approbation, unprecedented in the annals of Medical Literature. This approbation, while it affords the Editor an honourable source of independence, as well as gratification, insures a constant stimulus to increased exertion. A renovating health, a redoubling zeal, a spreading circle of correspondence, and a widening sphere of observation, shall all be combined—with indefatigable industry—to render this Journal worthy of the flattering patronage with which it has been already honoured by a generous and liberal public. To say more would be unnecessary—to say less would be ungrateful. It is by performances, not promises, that the Editor hopes to maintain the confidence of his professional brethren, and contribute his mite to the diffusion of Medical Science."

In 1820 the Review experienced a further modification. If we trace

the History of Arts, Sciences, and every Human Institution, we perceive an endless series of changes and innovations marking their progressive advances towards perfection or maturity. It is, in truth, the province of wisdom and philosophy to profit by experience, and take each day a lesson from the past; while it is the character of folly and arrogance to vacillate without cause, change without object, or persevere against conviction. The "tenax propositi" is a dangerous maxim in Literature, as well as in Politics. The changes, then, which this Journal underwent, are not to be ascribed to caprice or instability. It will be found, on examination, that each innovation was an improvement on the preceding form, and an addition of labour and responsibility to the conductors.

It was found impracticable to keep pace with the progress of medical science in the *Review Department*, and at the same time allot, in every number, a sufficient space to Original Communications and Foreign Translations. As testimonials were received, from every quarter, of the most unequivocal approbation of the *Critical Analyses*, made by Dr. Johnson himself, with a closeness and precision beyond all precedent, and solicitations to carry them to the utmost extent, it was determined that the Medico-Chirurgical Journal should assume the character of an *Analytical Review*.

The paramount objects of the work were stated at the time by Dr. Johnson to be:—

FIRST.—To generate in the minds of medical students an early turn for observation; a habit of reflection; and a taste for medical literature.

SECONDLY.—To bring within the reach of those classes of medical society who may not have the leisure to peruse, the means to purchase, or the opportunity to obtain, the various works that issue from the press, a *comprehensive* yet *concentrated analysis* of all important medical publications enlivened with practical rather than biblical criticism, which last is more calculated to indulge the vanity of the writer, than improve the understanding of the reader.

THIRDLY.—To enable those who *have* the means and the desire of forming a selection from the current of medical literature, to judge for themselves, without the previous labour and expense of perusing and purchasing many *useless* publications.

It must be admitted that an *Analytical Review*, on a large scale, is highly valuable, not only for the purpose of reflecting the great features of medical science diffusedly through the profession, but also of fixing them in a form

of record conservative of what is most valuable, and calculated alike for present perusal and subsequent reference. The latter object was kept steadfastly in view, from a thorough conviction that, by declining all temporary matter, and registering that only which would be read with interest, and referred to with advantage, a work would be constructed, the volumes of which would become more valuable in proportion to their age. What an inestimable treasure would now be an Analytical Review of all that has been published during the last hundred years! and with what interest can we now look back upon the labours of our author, concentrating in a single work the medical science of an era, distinguished as it was by emancipation from prejudice, and by a rapid advance and general movement not often met with in the world of medicine.

But whilst the medical readers at large were benefited, medical writers derived no small advantages. To have their works analytically portrayed before the whole professional circle, leaving the judgment in general to the public itself, is of no mean service to authors, stimulating the deserving to increased exertions, and allowing those exertions to be brought home to the profession at large.

That the Medico-Chirurgical Review executed the task undertaken with credit to itself and advantage to the public, was soon shown. It became necessary again to enlarge the numbers, nearly to their present size, and not only was its reputation and consequent sale, widely spread at home, but its fame extended also throughout Europe, and across the Atlantic.

The eclectic or leading articles, the supplemental reviews, and all the principal analyses became regularly republished in America; while extracts from many of them were diffused through the continental periodicals. It could not but be gratifying to authors to know that *full accounts* of their productions were read not only wherever the Journal travelled, but that, by branching into new channels, in various countries, they continued to be circulated to an almost inconceivable extent. In reciprocity of intellectual intercourse this work collected into a focus the prominent rays of science and useful knowledge, beaming from other and distant regions, thus alternately diffusing light by reflection, and receiving it in return.

"Un immense reseau," says an eloquent foreign medical writer, "de communication entre tous les savans de l'Europe, et même du nouveau monde, entretient l'eveil des esprits, repand les decouvertes comme l'éclair qui brille soudain à tous les yeux, etablit cette harmonie de sensibilité morale entre toutes les âmes éclairées, et les fait participer en même temps aux pensées les unes des autres."

In 1824 it was determined to commence a new series. The reason for this was, that the back numbers were out of print, and few people like to begin with a broken set of a periodical journal. The scope and tendency of the Review were now well known; the plan adopted, viz., that of discarding all original articles, and confining the work to analytical reviews of books, and selections from the various Journals, time had proved to be not only perfectly practicable, but highly satisfactory. While, unencumbered with original communications, the Periscope enabled the Editor to select all the really valuable novelties that appeared. It was true that they were had only at second hand, but this, in many respects, proved an advantage. If the articles would not bear keeping for three or even six months, they were hardly worthy of appearing in the Review at all. There is, in fact, great variety in these commodities. Some keep a week, and no more. The moment they see the light they perish. Others keep a month and then languish. If they stand three months, they are worth a trial, and the best specimens of these appeared in the Journal, mixed with the best samples from abroad.

From this time the Medico-Chirurgical Review enjoyed a quiet and tranquil existence; its popularity was fully established; its plan finally settled. In 1834, Mr. Henry James Johnson, who had then but lately served the offices of House-Surgeon to St. George's and the Lock Hospitals, became associated with Dr. Johnson in the management of the Journal, having long, however, written a large portion of it. In 1843, Mr. Johnson, who had then become Lecturer on Anatomy, and also Assistant-Surgeon to St. George's Hospital, found himself unable to devote the proper amount of time to the Review, and accordingly removed his name from the title-page, though he continued to write numerous articles.

In October, 1844, Dr. Johnson, finding that his health and strength were no longer sufficient to enable him to support the constant fag of the Editorship of the Review, in addition to the toils of his extensive practice, most reluctantly determined to resign its management. We are convinced that it was a much more severe pang for him to do so than would readily be imagined. For nearly thirty years had he been engaged with it—he looked on it as a creation, a child of his own—they had started together in this vast metropolis, unknown and friendless—together they had thrived—and now, when success had been attained, it was a hard blow for him to resign it to the care of others.

The deed, however, was done; and the Medico-Chirurgical Review passed into the hands of its present proprietor. Dr. Johnson from that

time ceased to have any direct interest in it, but he had the consolation of feeling that no trouble, no expense would be spared by the new management in their endeavours to deserve the continuance of that amount of patronage which in his hands it had obtained.

The preceding historical sketch of the Medico-Chirurgical Review will not be uninteresting to *our* readers at all events. Probably it will not be so to any who peruse the life of Dr. Johnson. To start it, to conduct it, to resign it, were all epochs in that life, connected, by the subtle thread of destiny, with his best hopes and aspirations, his most highly-prized successes, and his bodily decline.

We have already said that to settle in the Capital, and to publish the Journal were simultaneous events. It was on that Journal he relied, to procure for him a position in London, practice, reputation, everything. A man who could make so bold a venture would not be likely to flinch in the conducting of it. Nor did he. Early tastes, a lively fancy, an enthusiastic temperament, the prize in front, the abyss behind, stimulated to the utmost his natural industry. So ready was his pen, that he rarely or never read the copy of his articles before they went to press—so accurate, that the cost of corrections after their return seldom exceeded a few shillings a quarter—so easy and so vigorous, that never has there been a Journal less infected with dulness. Yet facility of composition was, in his case, the reverse of copiousness of words, for terseness and conciseness stamped every line.

But, whatever his literary powers, a work of the magnitude of the Medico-Chirurgical Review, a work, be it recollected, essentially analytical, could not have been conducted as he conducted it, for thirty years, without a quality that has been found in the greatest men, and seems essential to the accomplishment of the greatest actions. That quality is *punctuality*. It was Dr. Johnson's motto and his practice—it entered into everything that he did, little or great, bodily or mental. In one sense, indeed, he was *not* punctual, for he was always rather before his time than after it. He calculated the pages which must be written daily to secure the due publication of the Journal. That number he made it a point of conscience to write, before he retired to bed. Weary or not, ailing or weak, in or out of spirits, what was to be writ was writ. If practice did not press, and he had leisure time, he anticipated the future, and wrote far in advance. His tours of health, which he commenced early and continued almost to the last, were fairly won by work beforehand. He never set out

without leaving the Journal in readiness, so far as writing went, for the next quarter-day. For ten or twelve years almost every article was written by himself, a circumstance, we imagine, unexampled in periodical literature.

His Tours of Health were tours of toil. Before setting out on them, every book that referred to them was read, the maps studied, the route chalked out, the posts arranged. Before he saw a place, he knew more of it than many who were born and bred in it. No sooner was the carriage at the hostel, than Dr. Johnson was not to be found. You looked in vain for him in-doors. He might be in the grandest street, in the dirtiest alley, inside the church, outside the theatre, but the most likely place to find him was on the top of the very highest hill in the neighbourhood. For this he always made at once, effected a sort of general reconnoissance, and studied details afterwards. Prepared before-hand, he knew what to look for; and that is the secret, in touring, as well as in many other things, of making the most of time. Whilst there was light he was ever on the move, and, like the Athenian, his motto seemed to be, action, action, action. Darkness alone drove him in-doors, to the light supper—but not to the early bed. What he had seen he would remember, and what he would remember he knew well, from early habits and long experience, he must note. The objects of the day, and the impressions of the moment, were recorded, in language fresh as the images that prompted it, before the tourist, however knocked up by the hills he had climbed, or the weather he had braved, consented to seek his couch. This was the method by which he saw so much in so short a time, and described with such spirit what he saw. In pleasure, as in business, (for pleasure was business,) we see the same natural aptitude for indefatigable exertion—the same love of order, regularity, and method.

His industry, indeed, was not only indomitable, but it can have rarely been surpassed. He conducted the Journal, built up an extensive private practice, read all that was worth reading in medical, not a little in classical, and extensively in general literature, composed, at short intervals, a series of popular works of by no means inconsiderable bulk, revised new editions of former ones, and took his annual tours of two or three months' duration. To effect this, there must be natural ability as well as industry, the power to do a thing quickly and well, with the resolution to do it punctually.

Dr. Johnson had determined that the Journal should be the means to practice, and it proved so. While it gave him a present income, it gave him also a name, and a name is the passport to professional success.

Patients came to him from the country, from the Continent, from the East and West Indies, from America; and though men, with peculiar opportunities, have carved out a reputation of a higher order, and amassed much more wealth, it will probably be long before a physician will, without those aids that do so much for the ablest and most fortunate, obtain consulting practice to the same extent, and drawn from so wide a range.

An excellent constitution had been shaken by fever in India and at Walcheren—was shaken now by this incessant toil, and, we may well suppose, anxiety. In the Winter of 1822, hæmorrhoides and prolapsus ani, from which he had suffered since his dysenteric attacks, led to the formation of matter in the cellular membrane round the rectum. Two operations, of some severity and risk, were requisite; Sir Astley Cooper performing one, Mr. Guthrie the other. Both these gentlemen were his personal friends, and showed him the most considerate kindness. He recovered after a long and painful illness, and shortly afterwards removed from Spring Gardens, where he had lived for the last few years, to 8, Suffolk Place, Pall Mall, where he afterwards resided. But his nerves were unstrung—his digestion never good, was impaired—the most gloomy images continually haunted him—and, to such a pitch did the mental depression consequent on dyspepsia reach, that, in the midst of the London season, with his practice curtailed by previous illness, he broke up in despair, and retired to Margate, as he thought, to die. The keen breezes of the Foreland restored the tone of the stomach, and with the indigestion went the gloomy and desponding ideas that it had generated. He returned to town in the course of a few weeks, with a body refreshed, and a mind as resolute as ever. How mysterious are the links in that chain of events, which drags us to our good or evil destiny. The calamity of to-day proves our salvation to-morrow, and what seemed the happiest stroke of fate, is the parent or the harbinger of ruin. So Dr. Johnson found it. The complaint which prostrated body and soul, and from which he predicted nothing but beggary, was to make his fortune. His own sufferings directed his attention more particularly to dyspepsia, and were the foundation of his Essay on Indigestion, which was drawn most vividly and truly from the life.

This Work, which bore the following Title;—*An Essay on Indigestion; or Morbid Sensibility of the Stomach and Bowels, as the Proximate Cause or Characteristic Condition of Dyspepsia*, was published in 1826. Its success was the most striking thing imaginable. It took the town, at least the dyspeptic part of it, by storm. Every victim to indigestion bought or borrowed it—he found in it his own sensations described, his own miseries

painted by a master-hand. It went through four editions in little more than nine months, and has reached and nearly exhausted the tenth. It was found on almost every table—it was reprinted in America—it was translated in Germany and France—it received at once the sanction of public and professional approbation—and it raised his practice, with magical rapidity, to the highest point consistent with his health, and his very moderate desires.

When we examine the work, to ascertain the cause of this excessive popularity, we are struck with its conciseness, clearness, simplicity, and truth. It describes, in plain and easy language, just what the author felt and saw. Its precepts are judicious, its practice simple. This was the secret of its vast success.

Of the next three years of his life there is little or nothing to be said. They were devoted to those avocations, which left few minutes of a long day unoccupied. In the Autumn of 1829, he made a lengthened and agreeable excursion to France, Switzerland, and Italy. He had previously made a not very dissimilar tour in 1823. The impressions of the first were strengthened or corrected by the last, and the result was a work which saw the light in 1831. It was intituled *Change of Air, or the Pursuit of Health and Recreation.*

To this work he was partial, and erroneously, in our opinion, looked upon it as his best. No doubt, it is written with spirit, and displays the bent of Dr. Johnson's mind, which, like his reading, was various and discursive. It records too the pleasantest hours of his life, when he travelled for amusement, novelty in every scene, health upon every breeze, and care no longer recalling the past, to dash the enjoyment of the present, and obtrude shadows of the future.

The first subject that occupies his attention is that striking effect of anxious and stimulating occupations, more visible in England than in any other country, and most of all marked in London. It is the "wear and tear" of the body from intense exertion of the mind, that exertion rendered so necessary by the mere desire to keep our place, to say nothing of the ambition to improve it. The pale face, the lined features, the drawn angle of the mouth and nose, the dingy complexion, and, very commonly, the impaired digestion, are the characteristic symptoms. This disorder, for disorder it is, Dr. Johnson sketches with a master's hand, and for this he proclaims change of air and scene the antidote. And no doubt it is so. There are few in this great city who have not experienced the complaint,

who have not found the value of the remedy. A high civilization brings its evils, but it brings some benefits too. The enormous increase of our manufacturing towns would bury their populations in their dingy streets, and murky atmospheres, did not that manufacturing wealth, which springs from them, cover the face of the country with railroads, plough our rivers and seas with steam-boats, and decorate our suburbs with villas. The wealthy man retires to these after his day of toil, while the petty tradesman and the poor mechanic are enabled, for the most trivial sum imaginable, to escape, on one day of the week at all events, from the unceasing labour of the six.

The "Change of Air" is not exactly a guide-book, nor is it a mere tissue of reflections. It is both, and probably a more amusing and companionable work could not be taken on the route its author traversed. Switzerland, Rome, Naples, Pompeii, Pisa, Genoa, Nice, pass in review before us, and we are continually met by some shrewd and original view of things and places we had thought familiar. No conventionalities imposed laws on Dr. Johnson, and if he thought a rock bleak he said so, the whole band of connoisseurs and dilettanti to the contrary. This independence of thought and expression produced its good effects, and in the case of the relics of Pompeii, was the means of leading the authorities of Naples to a juster sense of morality and decency. Indeed, we could not well refer to a chapter more characteristic of Dr. Johnson as a writer, than that very one. Rough, ready, humorous, caustic, and shrewd, a common-sense, Englishman-like view is taken of a Campanian city, and no falling in with fashionable cant, no affected admiration of antiquity, makes him hesitate to stigmatise, as a good man should, the abominations disclosed. His sketch wants the high polish and exquisite taste of Sir Lytton Bulwer's novel, but we have reason to believe that the latter acknowledged some little obligation to the author of "Change of Air."

The last Tour he made was in his native country—the last work he wrote was upon Ireland. The same bodily vigour characterised his journey through the Emerald Isle—the same sprightliness of description was found in his account of what he saw. In this Irish Tour, will be found also that independence of mind which made him cry,

"A plague o' both your houses,"

and rendered him alike indifferent to the shibboleth of every faction, Tory, Radical, or Whig. The wretched condition of the peasantry powerfully excited both his pity and his indignation, and he did not scruple to repro-

bate in the strongest terms, the mismanagement and misgovernment, social and political, which have afflicted Ireland, which have changed her labourers to paupers and assassins, her landowners to tyrants or absentees, curtailed her scanty manufactures, and made the English capitalist avoid her shores as he would a robber's den. Present at the great Tara meeting, Dr. Johnson had an opportunity of looking Repeal and Repealers in the face, and his natural good sense was far too robust not to make him penetrate, with sorrow and contempt, that enormous humbug. He expressed his sentiments on the subject freely, and even those who quarreled with their freedom could not but admit their honesty.

We have said that this was his last tour and the last work of Dr. Johnson's. He contented himself thenceforward with the duties of his private practice, and amused himself with general literature. Scarce a work of any character appeared, but he perused it, and this constituted his recreation after the labours of the day.

He was now advanced in life. At the age of 67, he still carried his years bravely,—his hair was scarcely bleached by so many Winters—it had grown a little, and but a little, sparse upon the crown—his frame was still erect—his step firm—and not a tooth was missing from its appointed place. To this he would frequently refer with satisfaction, and boast that he had never had a tooth-ache. He sent his patients to the dentist, but he never went himself. The only thing which his family and friends observed, indicative of the effects of time, was a gradual but perceptible attenuation.

Perhaps a slight sketch of the man, as he appeared about the prime of life, may not be considered impertinent. It brings the subject of the memoir more palpably before us.

He was rather under than above the middle height, spare though of an active make, with a ruddy complexion, remarkably large and intelligent eye, bushy eyebrows, square and copious forehead, and an expression in which unmistakeable benevolence was shaded with a cast of care or melancholy, it was not easy to say which. In conversation, the features lost this character completely, and assumed what you would suppose were alone natural to them, that of unalloyed cheerfulness. Plain in dress, though never slovenly, simple in his manners, unaffected in every thing, he communicated the idea of being just what he was, and of not wishing to be taken for anything else. For affectation, indeed, he had a supreme contempt, and pretension, of whatever character, or in any quarter, felt the power of his tongue and pen.

His outward was, as much as it was possible to be, an index to his inner

man. A disposition of unmitigated benevolence and kindliness was cloaked, in some measure, by that testiness of humour which so constantly conceals great goodness of heart. It is hard to explain this apparent inconsistency, but it is a common natural phenomenon. A rough word was sure to be succeeded by some substantial kindness, and so well was this known that it was played on.

Many who are not born to fortune, and acquire money by their own exertions, display a love of it, which lapses into avarice or parsimony. Such was not the case with Dr. Johnson. Liberality was a prominent feature of his character, and was stamped in every thought and act. It was not merely that he did not amass wealth with greediness, and hoard it with tenacity—he was liberal in money-matters, liberal in sentiment, liberal in every relation of life. This is that genuine liberality so rarely met with in the world. In the practice of his profession it was carried to a blameable extent. To refuse to wring, in sickness, their hard earnings from the indigent—to spare the blush, whilst we also spare the purse of decent poverty—to consult with considerate kindness the means of those whose lot is to sustain that hardest of struggles, the maintenance of a certain position in society with very inadequate resources—to lend the helping hand to the infirm of our own body—these are the privileges of the medical profession, which constitute its proudest boast, and will, we trust, be its unvarying practice. All this Dr. Johnson did, and more. Indiscriminate in generosity, he refused fees, where fees were no object to their owners, and where the money so rejected would be spent on frivolity or vice. For such a course no valid reason can be urged, and it is open to positive censure. It leads to imposition on good nature, (that is of little consequence)—but it leads also to the depreciation of medical remuneration generally. If a physician or a surgeon of distinction pitches his fees habitually low, he either undersells his brethren, or he puts them in the position of appearing avaricious. Now if there be a fixed professional fee, and they demand no more, it is unfair to them, and to the whole profession, to make that fee seem an excessive one. We do not object to discrimination, nor to liberality, however great, governed consistently by circumstances. It is to liberality without discrimination, and without any fixed or certain principle to regulate it, that we refer, and we think it is open to criticism. If blame, however, attach, in this instance, to Dr. Johnson, it will sit lightly on his memory, it touches the head and not the heart, and, living or dead, we cannot but admire the generous motive, however we may think that generosity extreme.

If his early life had not taught him avarice, it taught him prudence and economy. His tastes were simple and unostentatious. The plainest of liveries, the gravest of carriages, the least expensive furniture, the least luxurious board, were his. Show he equally hated and laughed at. The traditions of the sea were remembered even in the metropolis, and he would often prepare his own scanty meal in his own private room. His character indeed was not unmixed with eccentricity, and if he entertained extreme opinions, it was against parade.

No man could have more unfeigned horror of debt. If it was practicable to pay with ready money, he did so; if not, the terms of payment must be of the shortest possible extension. To owe was to him the most miserable thing in the world, and, at his death, his estate was found unencumbered to a degree that could hardly have been thought possible.

It has often been a matter of observation, that those who, in public, exhibit much vivacity, are apt, in private, to be dull or even melancholic. "As miserable as a comedian" is a proverb. The psychological explanation would not, perhaps, be difficult; but we need go no farther than the fact. Dr. Johnson was no exception to the rule. In conversation and society, lively, humorous, enjoying, as it seemed, the moment, it could hardly be supposed that this was an irksome strain upon his spirits, and that he sought, in quiet and in solitude, the repose more congenial to his disposition. This tendency had, no doubt, been generated by his literary occupations, and habit confirmed what necessity began. But in the exercise of his profession, he was always the same; and, as he obtained some degree of success in it, perhaps it may not be unprofitable to others to learn what procured popularity for him.

The practice of physic brings us into contact with the distresses and miseries of life. We do not, as the calling of some men compels them to, appear to aggravate or insult wretchedness, but our misson is to console and to assist. A cheerful manner—a kindly sympathy—a patient attention to those trifles, which, unimportant and tedious though they be, constitute the sick man's world—an evident desire to relieve—and that confidence in our own resources, whose source is knowledge, and which is recognised at once by the anxious and the eager eye of suffering,—these seem to be the qualities that should meet in the practical physician, and these were the qualities that met in Dr. Johnson. His was not the exaggerated kindness which caricatures reality, and assumes the ready tear, the convulsive grasp, the whining tone. It was a cheerful and a manly sympathy, one of acts as well as words, and none ever doubted its sincerity.

It came from the heart, and it went to it. Probably no man, since Dr. Baillie, has been more loved by his patients, and, after his death, their grief was both widely and loudly uttered.

As a practical man, he was ready and sagacious in opinion, decided though cautious in action. The larger portion of his practice, dealt, from its consulting character, in chronic cases. In these he was remarkably successful. An objection was often made to his prescriptions, that they were complicated and unchemical. He laughed at the criticism, and retained the habit, observing that he found his prescriptions answer, and that was the main consideration. In this there was undoubtedly much truth, for we have ourselves witnessed the excellent results of some of these elaborate formulæ.

For fifteen or twenty years, Dr. Johnson has been subject to attacks of gout, which, though not of a violent description, contributed to annoy and debilitate him. For the last two years of his life, these attacks became less frequent, indeed they almost disappeared. That proved to him, as it generally does, an unpropitious omen. In the Winter of 1844, he sensibly exhibited those changes of countenance and manner, which give, in advanced life, so significant a warning. During the greater part of 1845, he was ailing. There was no illness, but he looked ill. The cheek grew more pallid, the features more contracted, the stoop became perceptible, the limbs attenuated, the appetite was more capricious, the power of enjoyment was impaired. A tour was pressed on him, but he could not, or he would not, consider himself equal to it. He had for many years slept at a house which he had built on the northern confines of the Regent's Park. In the latter part of the Summer and Autumn, he took a cottage at Norwood, to which he retired in the afternoon, returning to town in the morning. At first he found this of service, but discovering or supposing that the water disagreed with him, he left Norwood in September, and went back to the Regent's Park. He had long been partial to Brighton, and the railroad offered him facilities of which he determined to avail himself. He resolved to remain there for a couple of months, coming up to town three days in the week to see his patients. Unfortunately, Brighton was so full that he found it impossible to procure a house or apartments on West Cliff, and was compelled to repair to East Cliff, the lower portion of the town. Here the drains are frequently deranged, and it happened that they had been so at the house he selected, immediately before his visit to it. The residents and visitors had all been seized with diarrhœa, and this attacked himself and those attending him, almost on the instant that he entered it.

His intention to remain at Brighton three days in the week was not acted on. Devoured by ennui, he turned with satiety from the groups on the Parade, or the boats upon the beech, and after one attempt, he fled to the express train, and came to and returned from London daily. The excitement and exertion were too great. On the 4th October, returning by the train to Brighton, he was seized in it with a rigor. On arriving at his lodgings, he exclaimed to his wife, that unless he could procure a free perspiration this attack would be his death. That night he was delirious. The diarrhœa, which had never ceased, became aggravated, dysenteric—the low fever of the aged and exhausted was established on it—and worn out by purging, tormina, tenesmus, hiccup, he expired on the 10th, surrounded by his family, and sensible nearly to the last.

His death was the echo of his life. It was not embittered by regrets for the past, nor terrors for the future. He looked back with satisfaction and forward with tranquillity. Resigned to the will of God, and cheerful, his care was for others, not for himself, for the personal wants of his children and attendants, not for his own sad necessities. When Dr. Hall and Dr. Yates, who were attending him, assured him he was better, he quoted Pope's well-known saying, that "he was dying of good symptoms;" and when they expressed their sympathy for his sufferings, he thanked them for their kindness, begged they would not trouble themselves about him, and added, with a melancholy smile, that "his old shattered frame was not worth repairing." Nor did his strong sense desert him, till close upon that last and saddest moment when all sense is fled. Suffering the extremity of anguish, those around him attempted the consolation that a merciful Creator would soon ease his pains. "I am not so childish," he observed, "as to imagine, that the laws of Nature will be changed for me. I have much still to endure." A little later, when a slight and but a slight deliriousness began to cloud his faculties, he was asked if he had any further wish, in the disposition of his property. He paused a minute, in reflection, and replied, "It is best not. I may be confused, and might direct what would not be advisable." It was known that he had a desire at his heart, but feeling that his mind was not as clear as it was wont to be, he refused it utterance—his powerful understanding and his sense of justice crowning his death bed.

At the time of his decease, he was within a few months of his 69th year. He had, on several occasions, predicted that he should not survive his 70th. He left behind him, to mourn the loss of one of the best husbands and of

fathers, a widow, four sons, and a daughter. Of his sons, the eldest, Mr. Henry James Johnson, is Senior Assistant Surgeon to St. George's Hospital, and Lecturer on Anatomy and Physiology. He retains the house in Suffolk Place, where his father resided for more than twenty years, and he practises there as a consulting surgeon. The second son, William John, is at the bar, and a Fellow of Caius College, Cambridge. The third, Thomas Edward, is a Solicitor in Lincoln's Inn. And the youngest, Athol Wood, was recently house-surgeon at St. George's Hospital, and is preparing to take out his degree as a Physician.

If we look back on Dr. Johnson's career, we cannot but deem it a successful one. He started in life without money, friends or education. He was literally unknown. By his energy and talents he worked out for himself education, a profession, reputation, and a competency, if not a fortune. He gratified his tastes, while he raised his position. Fond of observation, he saw a large portion of the globe—and happy in describing what he saw, his writings were a source of emolument and honour. By taste, by circumstances, he was the child of literature, and literature was to him most bountiful—his name was noised abroad by his popular writings: his fame will live with his standard works. His earliest aspirations were to venture all in London—and, in London, at last, he ventured and won. Ambitious of a good rather than a great name, the general regret that waited on his loss, proves that that ambition has been gratified. If he dreaded anything it was the decrepitude and childishness of declining years—he was spared both; he practised his profession as successfully as ever to within a week of his death, and his faculties were sound to his last illness. He did not worship wealth, but he desired a sufficiency—he obtained it, bequeathing to his widow an easy independence, and to his children what will sustain, though not debauch, their industry. What he prized above all things was integrity and honesty, and he has left a name which is synonimous with both.

His ashes repose in the family grave at Kensal Green. Above them a monument of Sicilian marble, bears, or is like to bear, the following inscription:—

JACOBO JOHNSON,
Medico Præclaro
Literarum haud Sordido Cultori
Multis Amicis Flebili
Marito, Patrique Optimo
Uxor Filiique Dolentes
Hoc sacrant Monumentum.

MEDICAL AND PHYSIOLOGICAL PROBLEMS, BEING CHIEFLY RESEARCHES FOR CORRECT PRINCIPLES OF TREATMENT IN DISPUTED POINTS OF MEDICAL PRACTICE. By *William Griffin*, M.D., and *Daniel Griffin*, M.D. Octavo, pp. 258. London, Sherwood, 1845.

THE Essays which constitute this volume originally appeared, we believe, in the pages of our Dublin cotemporary. Although the reproduction of such detached papers is usually inexpedient, such is not the case with the present ones, since they abound in useful practical remarks, and are illustrated by numerous interesting cases, detailed with a graphic power which seems almost peculiar to the author's countrymen. With the exception of two or three, they are from the pen of Dr. William Griffin, Physician to the Limerick Infirmary, who thus states the view he had in their production:—

"There are two *modes* of treating all diseases, a right and a wrong one; and it is popularly believed that the science of medicine has long since determined between them; that in every dangerous case, or, at all events, in those of ordinary or frequent occurrence, the practitioner has only to refer to received principles or authorities on the subject, and that if he commits an error in his selection of remedies, it is entirely attributable to his want of information or ability. It would, no doubt, astonish the public very much, and do little credit to medical art, if they were told, that there is scarcely a complaint to which humanity is liable, the treatment of which is, in all points, absolutely agreed upon by the profession; and that with reference to the most ordinary of dangerous cases, and those supposed to be best understood, remedies of a different and even opposite nature have been advocated by men of the highest celebrity. * * * * *

"It occurred to me some years since, that it would be a most useful, practical, and interesting study to collect cases with reference to all the most important of the disputed points in practice, and afterwards as a sufficient degree of personal experience happened to be attained on any one of them, to review the opinions of all the best authors on the subject, and endeavour to solve that most difficult question—'What is the correct principle of treatment?'"—*Preface.*

We may now advert to some of the results of this system of inquiry.

1. *What Principles should be kept in view by the Physician in the Treatment of Enteritis?* After adverting to the discrepancy which prevails in the advice given by the highest authorities as to the employment of bleeding (at least in the advanced stages), and the administration of purgatives in peritoneal enteritis, Dr. Griffin insists upon the importance of proportioning the *venesection* to the strength of the patient—this being estimated by his state of health prior to the attack rather than by his condition in the early stage of the disease. Unless this rule be observed, we risk confounding indirect debility produced by the depressing influence exerted by the disease on the powers of life in a robust subject, for the true debility which is present when causes of exhaustion, as hæmorrhage, &c., have preceded the attack of inflammation. In an interesting case, related at great length, the patient, of a hysteric yet strong habit, at first fainted after a few ounces of blood were taken, but as the inflammation progressed, bore much fuller depletion well; so that the propriety of placing

persons in the erect posture for the readier induction of syncope, as recommended by Elliotson and others, is questionable in some cases; since, however serviceable syncope, occurring after a small loss of blood, may prove in colic, it is only of temporary avail in inflammatory action. "There must be an absolute abstraction of blood, capable of directly depressing the whole system, to produce any permanent influence on the disease." So, too, Dr. M. Hall's proposal of taking the power which the system exhibits of resisting syncope in bleeding in this posture as a measure of the extent of inflammatory action present, is seldom applicable at the *commencement* of the disease, when such a test is most wanted. It is only as the disease advances that the inflammatory characters predominate over those of the individual habit. But, if bleeding has not been freely performed at the commencement of the disease, caution is required in its institution afterwards; for, although the author is scarcely inclined to agree with those who think that gangrene is thus more readily induced, yet he is not disposed to close his ears to the opinions of so many able practitioners who have denounced the employment of bleeding at a late period, when the disease seems to have acquired a power of vitality not to be subdued in the same manner by depletion as on the first day of the attack. Early and free bleeding having failed, or been neglected, venesection henceforward becomes only an auxiliary, not a principal means.

Dr. Griffin joins those who object to the administration of *Purgatives* in enteritis, and believes that "*people do not recover because they are purged, but they are purged because they recover.*" Inflammatory action being subdued, a lax state of bowels follows, which it might have been not only difficult to have procured before this by purgatives, but dangerous to attempt doing so, in consequence of the easy propagation of irritation from the mucous to the serous surface of the bowels—a danger which precludes our having recourse to the derivative purging so useful in cephalic and thoracic inflammations.

Of the use of *Opium* in peritoneal enteritis, Dr. Griffin entertains the highest opinion, and relates several cases in which very large and frequent doses were given with the happiest results. In one case, first two grains and then one grain doses were given every two hours, until 32 grains had been taken, two or three grain doses being resorted to on the occurrence of a relapse. In the case of a girl, 10 years of age, whose condition had been previously much aggravated by the use of purgatives, and who appeared to be sinking, 20 drops of laudanum were given, and in half an hour a grain of opium. Sound sleep ensued, and the patient who had seemed almost moribund was saved, the opiate being continued for some time at longer intervals. To a boy, æt. 5, in whom peritonitis occurred during the last stage of typhus fever, probably from perforation, grain doses were given with a successful result. Dr. Griffin does not propose opium as a substitute for general or local bleeding where these can be borne, but as a most useful remedy where this is not the case; or where the disease continues in spite of their institution. The state of the bladder should be carefully watched, as retention of urine is not of unlikely occurrence during the use of full opiates. We may extract some of the concluding remarks.

"It must not be imagined, from all I have stated, that I believe *purgatives*

to be at all times unadvisable in enteritis. There are perhaps occasions in which they are of use even in the early stage, but it is difficult to offer indications by which we shall recognise these occasions in practice. In the advance of the disease, when its force is considerably broken, and the bowels may be supposed capable of acting without increasing or renewing the inflammation, there must be an obvious advantage in getting rid of the contents of the bowels, and this may perhaps be then generally effected with safety by means of mild purgatives, combined with henbane. If, however, there was no injurious distension present, and the inflammation was progressively declining, my disposition would be, to await a more perfect amendment before I would give even these. * * * Without pretending to have satisfactorily solved the problem which I have yet ventured to discuss at such length, I shall merely recapitulate a few of the principal facts, as far as they appear to be such, and leave the inferences to the reader. General experience testifies, that the strongest purgatives will not operate in the early stages of inflamed bowels, unless large depletion by the lancet has been premised, that is, unless the violence of the inflammation has been in some measure subdued: while, on the other hand, as soon as this has been accomplished they commonly occur spontaneously, or with the assistance of the mildest purgatives. Notwithstanding the free operation of purgatives at an early stage of enteritis, the inflammation may proceed to a fatal termination, unless arrested by other remedies. A purgative has been known to occasion inflammation of the bowels, and when inflammation has been subdued by other remedies, it has brought on a recurrence of it. Inflammation of the bowels may be perfectly subdued without any evacuation at all. The bowels may even sometimes continue in a confined state for three or four days after the inflammation has subsided, without occasioning injurious distension." P. 34.

2. *Nervous Affections of the Abdomen, &c., distinguished from Inflammatory.*—Dr. Griffin observes that the importance attached by Abercrombie to the existence of tenderness of the abdomen on pressure as a sign of inflammation, is in accordance with the general opinion of the profession; but that there are cases in which this exists independently of any inflammatory action; and which are to be especially distinguished, as he pointed out several years since, by the simultaneous existence of *tenderness of a corresponding portion of the spinal column.* "Wherever spinal tenderness exists, we must at all events set down pain and tenderness as wholly valueless; inasmuch as, whether there be inflammation or not, these are not peculiarly the results of it, but may also arise from the tender state of the cord. I might perhaps go much farther and assume, that where spinal tenderness exists, there also exists a state of the system scarcely compatible with acute inflammation." Several cases are given in which this symptom led to the adoption of an appropriate treatment, in lieu of the depletion seemingly indicated by the tenderness of the abdomen.

"Perhaps it may be said, that an experienced eye would have detected some anomalous symptoms in all these, which would have led to doubts of their inflammatory nature. I am not disposed to deny that much may be inferred in such attacks from the suddenness with which violent symptoms supervene, the absence of deep distress and anxiety of countenance, and above all from a freedom in the movements of the lower extremities, unusual in acute abdominal inflammations. There was indeed at least one of these discrepancies observable in a greater or lesser degree in each of the cases detailed; but how are young practitioners to form a diagnosis on such grounds. People suffer similar degrees and kinds of pain with very dissimilar degrees of fortitude, and at all events any reasoning on such signs must be founded on comparisons, which, to be worth

anything, would imply an experience no young practitioner can be supposed to possess. * * * * * * *

The observations offered respecting the diagnosis of cases resembling acute inflammations, apply with almost equal truth to those resembling chronic diseases. I mean those pains affecting the chest, attended by cough and perhaps oppression, leading to apprehensions of phthisis; affecting the side below the false ribs, and suggesting affections of the liver or bowels; or affecting the pubic region and simulating disease of the womb or ovaries. The deducing inferences from acute or chronic pain apparently affecting any viscus, without examining the state of the spinal cord, seems to me little less absurd than omitting to examine the state of the hip-joint in those painful affections of the knee, the nature of which is not immediately obvious." P. 48.

The importance of this subject to young practitioners can hardly be overstated. Accustomed during their studies to hear clear, well-defined, descriptions of disease, and to witness in the hospitals well-marked examples of inflammatory affections, they are often, at the commencement of their career, ill-fitted to cope with the hysterical, mimotic and hybrid forms of disease that await them in private practice; and too often signalize it by an injudicious wasting of blood in subjects who can ill bear the loss. Although, too, the diagnostic mark, first proposed we believe by Dr. Griffin, and since frequently recommended by others, has its value in many cases; many others will still be found in which it is wanting, and yet in which the symptoms are but simulatory of inflammatory action. Some additional observations conclude a second paper upon the same subject.

"In determining the diagnosis of abdominal inflammation, where both pain and tenderness on pressure exist, we should always endeavor to ascertain—1, Whether there be any pain or tenderness on pressure in the corresponding portion of the spinal column; because, if there be, although it may not absolutely decide whether inflammation be present or not, it is quite sufficient to account for both the pain and tenderness, without assuming the existence of any inflammation. 2. Whether, if there be no spinal tenderness or pain, the soreness of the abdomen be superficial or deep seated, which may be ascertained with tolerable certainty in all cases, by an examination directed to that end. And whether, if both superficial and deep-seated, as it usually is in peritoneal inflammation, gentle, steady pressure with the flat of the hand can be easier borne, than with the points of the fingers. In pain and soreness from affection of the spinal nerves it commonly can be so borne, while in peritonitis every kind of pressure, and even the weight of the bed-clothes, is very distressing. (And yet one of the best means of distinguishing hysterical tenderness will often be found to be the observation of how the *slightest* degree of pressure gives rise to the expression of intense suffering, although the countenance does not always corroborate this. The tenderness in these cases is quite cutaneous.—*Rev.*) 3. Whether the boundaries of the pain or soreness extend beyond what the suspected inflammation could produce. Thus, if inflammation of the liver be suspected, and we find the soreness extending to the ilium or groin, or to the opposite side of the abdomen, it is obvious the soreness cannot be attributed to mere disease of that organ. Again, if the whole abdomen be tender to the touch in a case otherwise closely resembling peritonitis, and we find the tenderness is not confined to the abdomen, but extends over the hips and lower extremities, it is obvious we can attach no importance to the abdominal soreness as a sign of inflammation. (This is a most valuable sign from which we have often derived the greatest assistance. *Rev.*) Finally, it should be recollected that constipation may depend on mere loss of power in the intestinal nerves, as well as on spasm, obstruction, or in-

flammation, since the treatment in each case must necessarily be modified, or directed by the supposed cause of this symptom." P. 59.

3. The Fourth Problem entertains the question of the reality of affection of the spinal cord or its membranes in disorders attributed to spinal irritation. Dr. Griffin quotes from a former work a tabular view of 148 cases, in which, according as the tenderness was cervical, dorsal, or lumbar, the symptoms were referable to portions of the body supplied with spinal nerves from these respective regions. But the proof of the truth of the doctrine does not rest upon the existence of any such tenderness. In spinal irritation, according to the part implicated, we have in fact simulation of all the diseases of the economy; and a perusal of Abercrombie's work exhibits the extent. This is true also in organic disease of this part. This doctrine, too, affords a rationale of many symptoms otherwise inexplicable; and the author strongly states the great benefit which has accrued to him in the diagnosis and treatment of various affections, by observing whether tenderness is produced by pressure over the origins of the spinal nerves, and refers to cases where, by neglecting the indications thence derivable, experienced practitioners have fallen into grievous errors.

4. *Bloodletting in Diseases of the Brain.*—This is a very good paper from the pen of Dr. Daniel Griffin. The variety of opinion held by celebrated authors as to the propriety of free depletion in apoplexy is very great, although certainly the disposition among our best practitioners of the present day, is to discountenance that free and indiscriminate use of the lancet, once believed, and still believed by the public at large, indispensable in such cases. Notwithstanding this opinion prevails, its practical enforcement is difficult, owing to the circumstance of cases occurring which vary greatly as to the quantity of blood they require, or will bear, to be abstracted, and yet do not present characteristic symptoms of such differences.

"In directing attention to the utter impossibility of inferring from any group of symptoms, the precise seat or the degree of any cerebral disease, I am sensible that I only point to a difficulty without showing the means of escaping from it: yet, there is one conclusion of immense practical importance that I think will be found correct, namely, that in considering the expediency of bleeding the *actual degree of organic disease that exists* is of infinitely more importance than its seat or nature, in other words, that bleeding is badly borne in all cases of extensive organic disease of the brain, *wherever the disease may be situated or whatever be its nature.* I do not deny that situation may be of much consequence in questioning the value of this remedy—our knowledge of the functions of some parts of the brain would tend to show that it is so, but we are not yet in possession of facts sufficient to prove its relative importance, and even if we should be able yet to ascertain this, the tendency of such a discovery would only be to narrow the limits of those cases in which bleeding is useful. The great mistake made about bleeding in diseases of the brain is looking to the fit as the test of its utility, instead of looking to the whole course of the disease and the event, and comparing cases in which it is used with those in which it is omitted, in all their circumstances, more particularly the last." P. 79.

Dr. D. Griffin adds, that the cases calling for large bleeding, are those of recent origin, in which little disorganization has yet been sustained by

the brain; and he instances the great extent to which bleeding in affection of the brain from poisoning by opium may be advantageously carried. Our object should then be to examine what evidence there is of the existence of organic disease, and to act cautiously in proportion as this is strong. The following is the summary of reasons against the general employment of large bleedings:—

"1. They are improper, because symptoms are no certain test of the amount of disease, and we may produce a degree of debility (as in a case given) that cannot be contended with. 2. They are improper in all cases in which extensive disease of the brain is known or suspected to exist; as in such cases, besides the immediate danger, they produce a degree of debility that would interfere with the process of reparation so far as that is possible. 3. They are improper in all cases of disease of the brain attended with severe and protracted pain, as such cases usually die, not from any mechanical effect of an existing inflammation, but from the exhaustion produced by the pain that accompanied it.

"As a general rule I would, therefore, even in circumstances in which the loss of a large quantity of blood was supposed to be necessary, prefer taking it away in moderate quantities at certain intervals, watching the progress of the case, and being guided entirely by it." P. 87.

5. *On what Morbid State does the occurrence of Coma and Sudden Death in Jaundice depend?*—The remarks in this paper are based upon four cases occurring in the same family within a short period of each other, in two of which the coma was followed by death, and in none of which were there any remarkable symptoms indicative of the approaching danger. Free purging proved of great service in the two cases that recovered. This complication has been very little dwelt upon by authors, and not even noticed in several even modern treatises on Jaundice. The mutual sympathies so markedly existing between the brain and the liver have led to doubts as to which organ is here primarily affected. Dr Griffin is not disposed to agree with those who suppose these effects result from retention of bile in the circulation and its sedative influence on the brain, seeing that they bear no proportion to the frequency and extent of this occurrence.

"There are very many interesting facts which would tend to shew, that the brain is, in some instances at least, the organ primarily in fault in jaundice. Besides the well known occurrence of abscesses, and other diseased states of the liver from injuries of the head, sudden yellowness of the whole person has not unfrequently followed intense mental emotion, and has often been observed in fevers and other diseases, in which the brain and nervous system have been much affected. Some of the cases published by Dr. Marsh, to which I have already adverted, seem to have depended on an affection of the liver, and of the mucous coat of the intestines, originating in cerebral disease. If, in such instances, we could suppose the affection of the head to be so obscure as altogether to escape the attention of the practitioner, previous to the occurrence of jaundice, there would be little or no indication of an unusually dangerous form of the disease. He would almost necessarily attribute the headache, langour, and sickness to the retention of bile in the circulation, and the supervention of coma and apoplexy would seem sudden and unaccountable; when, if he could have suspected the source of the disease, it would have been anticipated as a very probable termination.

"We have not, unfortunately, a sufficient number of reports of post-mortem examinations in those cases, to form any decided opinion on the subject. If,

with such imperfect materials, even a conjecture might be hazarded, I should, on the whole, be disposed to say, that the cerebral affection is rarely the primary disease, but is superinduced, we know not how, by the suppression of a most important excretion, as it sometimes is in the suppression of the catamenia, and almost always of the urine." P. 96.

6. *Is Laryngismus Stridulus, or the Crowing Disease, a Spasmodic or Paralytic Affection?*—Dr. Griffin contributes some additional cases of this singular disease. In two of these, infants of a few days old, the crowing was merely incidental, coming on during the existence of an apoplectic condition, an assemblage of symptoms to which the author gives the name of *crowing apoplexy of infants*. Both patients died. In one case, a general ramollissement of the brain was found, while, in the other, this organ was perfectly healthy. Prior to the attack the children seemed healthy, with the exception of some derangement of the bowels. The four other cases were examples of *laryngismus stridulus* so well described by Ley; they were treated in the same manner as other convulsive diseases, and the whole died. The purport of Dr. Griffin's remarks is to show the insufficiency of Dr. Ley's theory for the explanation of the phenomena of the disease—*viz.*, the pressure of enlarged cervical glands palsying the recurrents; but, as this opinion has now, we believe, few advocates, we need not detail the objections offered to it by the author.

"On the whole, after all the consideration I have devoted to the complaint, and having, I think, given other ingenious arguments of Dr. Ley their due weight, I must still confess myself a disciple of the older doctrine, that the affection is one of spasm or partial convulsion like cramp, rather than of paralysis. The fact of its being frequently benefited by anti-spasmodics, with which Dr. Underwood tells us he latterly cured most cases, and by anodynes, as opium, hemlock, cicuta, &c., recommended by all modern writers on the disease, favors this view; the circumstance of the sudden occurrence of the gasping and crowing on washing with cold water, laughing, crying, or agitation of mind, also supports it, as well as the almost universal co-existence of the carpo-pedal contractions, and the frequent termination of the complaint in convulsions. But above all these, as a strong analogical evidence for its spasmodic character, I place its paroxysmal nature and the manner in which the paroxyms occur. The office of the superior laryngeal nerves would lead us to expect a disposition to spasmodic action on the least irritation or excitement, recurring at irregular intervals, dependent of course on the return of the irritation or excitement, but far more on the increase or decrease of the susceptibility of the parts, and disposition to spasmodic action.

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If it be inquired further, why such a dangerous result as the suspension of respiration in the crowing disease does not then occur more frequently, it can only be replied, that we are wholly ignorant of the morbid condition which disorders the functions of those nerves, or whether it exists at their extremities, or their origin in the medulla oblongata. If we suppose the affection to be organic, we should find it more difficult to account for the occasional recoveries under very mild treatment, than the usual fatality under the most active. If it be functional and therefore symptomatic, we can better understand why it might depend on a variety of causes; at one time upon an affection of the head, at another of the bowels, at another upon dentition; we can comprehend, too, how these several affections, influencing peculiar predispositions, may in one child occasion hydrocephalus, in another convulsions, in a fourth, that more rare infantile disorder, the crowing disease. This seems to be very much the view taken of the affection by Dr. Marsh, and more lately by Dr. Stokes. The disease, as the latter physician

observes, may show itself as a simple spasmodic affection of the larynx, *independent of any other perceptible lesion;* but this is the rarest case. In others, it is connected with the *irritation of dentition or deranged digestive functions;* while in a third class, it is symptomatic of *primary cerebral disease.* In this last the spasm of the glottis is as symptomatic of the cerebral disease as the convulsions of the extremities." P. 137.

In the *treatment* of this dangerous disease we must therefore search out for any disordered function, and apply the requisite measures, always taking care not to lower the tone and strength of the system injuriously. Indeed, the maintenance of the general health is of the first consequence, and to this end the management of diet and change of air are most important means. Dr. Griffin suggests that, in this and other diseases, especially such as are endemic, the placing the patient in an atmosphere as different as possible from that in which the disease originated, might often be beneficial. He recommends the child should be much in the open air, and sleep in a cool well-ventilated bed-room. He does not approve of the endeavour to treat the disease as a pure cerebral affection, and recommends tonics or anti-spasmodics and anodynes, according as debility or irritability may be the prominent feature. When there is no cerebral or abdominal disorder, iron or zinc may be employed in the endeavour for preventing a return of the attack, and the Indian hemp may be tried as an anodyne. The strumous character of these patients also indicates the use of iodine. Dr. Griffin truly observes that both the pathology and treatment of the affection are as yet quite unsettled; and thus sums up the amount of our present information respecting ascertained facts.

"By the concurrent testimony of almost all who have noticed the affection, it occurs for the most part, if not wholly, in strumous habits. It is frequently found in connection with enlarged glands in the neck, and perhaps in the thorax. It is frequently found in connexion with eruptions on the face, ears, or scalp. It frequently terminates in convulsions, and is sometimes, though very rarely, ushered in by them. It is met with in families in which children are subject to head-affections or convulsions, but who have also the strumous disposition. It is sometimes met with in connexion with an apoplectic or comatose state from the commencement, as in the cases of crowing apoplexy which I have described. In a great proportion of the cases which terminated fatally there was no symptom of head-affection through their whole course, beyond the occasional fits of breathlessness and crowing; and the children were as well, apparently, a few moments before death, as they were previous to the first attack of the disease, or as any children could be. The complaint is sometimes, but rarely, attended by cough or permanent difficulty of respiration. I believe it may be said that, from one-third to half of all the cases of which we have any account, terminated in death. But this great mortality may perhaps, in some degree, be attributable to the over-active treatment pursued in many instances, from mistaken notions of the congestive or cerebral nature of the disease." P. 140.

Dr. Griffin makes no mention of the enlargement of the Thymus Gland, so frequently met with in this disease as to have obtained for it in Germany the appellation of "Thymic Asthma."*

* See Med.-Chir. Rev., No. 57, p. 230, and Lancet, May 22, 1841.

7. *What are the Therapeutic Effects of Opium?*—Dr. Griffin employs this drug very largely, and speaks even enthusiastically of its virtues in various parts of his work. The present chapter contains some very useful observations upon its administration in different conditions of disease. It is universally allowed to be the most certain of the *narcotics*, but, in particular idiosyncracies, so far from composing the system, it exerts quite a contrary effect; and indeed we have felt somewhat surprised lately at the number of persons in whom we have observed this to be the case. In these cases, Dr. G. observes, although as a general rule we should abstain from giving opiates at all, it sometimes happens that some pressing symptom calls for their administration. He has found the vomiting and retching which occurs in some, prevented by a grain or two of capsicum, and the exciting effects observed in certain idiosyncracies are to be combated by combining the opiate with camphor, ipecac. or emetic tartar.

"When the results are sinking and faintness without stupor, they commonly arise many hours after the exhibition of the medicine, and are in fact mere symptoms of exhaustion, following the declining influence of an over-dose. They may be removed or alleviated by renewing the opiate in a smaller dose, or, if other considerations render this unadvisable, by stimulants frequently repeated, and eventually by sleep. It is often of great importance in medical practice, and especially so in all dangerous cases where opiates may have been largely administered, that we should remember a period of sinking and exhaustion is likely to come on from 12 to 24 hours after opiates have been discontinued. It almost invariably occurs, where the opiates have previously been long-continued, or taken in frequently-repeated doses, or where there is great constitutional susceptibility to their action."

Dr. Griffin alludes to cases in which great sinking and exhaustion followed the omission of even a very reduced dose. He cautions the physician, therefore, not to leave off opiates too abruptly, and not to attribute the debilitating effects which follow their too sudden withdrawal to the nutural phenomena of the disease, and thus resort to improper means for relieving them.

"This is particularly apt to occur in the cases of young children or infants, when the violence of the inflammatory symptoms has gone by, and it has been found necessary to administer opiates. About the time the influence of the opiate is wearing out, if it has been a large one, the eyes look sunk, the eyelids lie half open, disclosing a small portion of the white cornea, the face is deadly pale, the skin clammy, and the whole appearance of the child suggests an apprehension that it is dying. Yet, if a little nourishment, or some slight stimulant, be given, or even if a little time be allowed to elapse, the heart will recover its tone, the little patient will revive, and may, perhaps, appear finally to be even in an improved condition."

This is a very faithful portrait of what we have repeatedly observed after the administration even of moderate doses of Dover's powder to young infants.

It is familiarly known that an *under-dose* of opium will disturb, while a full dose will compose; but Dr. Griffin draws attention to the important fact, that an *over-dose* will produce precisely the same ill-effects as an under-dose. Where a restless night has resulted from too much opium being given, sound sleep may occur the next night without any opiate

whatever. So, too, if the doses of opium, given during the existence of inflammation with advantage, are continued when this has subsided, stupor or troubled sleep, according to the degree of surplus given, will result. "I am anxious to direct the attention of the profession to the consequence of an over-dose particularly, because I have seen physicians, under the circumstance, draw a directly opposite inference from it, and imagine they had given too small a quantity of the drug, when, nevertheless, on being induced to forego its repetition on the ensuing night, the patient has enjoyed a long and profound sleep."

An important question in the administration of opium as an *anodyne* is thus put by Dr. Griffin. *When a large dose has been administered, and a patient is still suffering intense pain, how long should one wait before it could be considered safe to repeat it?* He believes half an hour is the limit within which crude opium will be found to manifest its effects—the liquid preparations of the drug acting somewhat sooner: and that the dose may be then safely repeated if the pain or spasm is not relieved, however often it may have been given. This will not apply to *moderate* doses given to procure sleep, which first produce an exciting effect. Indeed, in susceptible constitutions the opiate should be given some hours before bed-time, in order that this excitation may have completely passed off. Another rule for the administration of opium for the relief of pain, especially of a periodical character, is, that a third part of the dose which was required to relieve the paroxysm is required to prevent its recurrence. "In fact, a moderate dose given in the interval, will sometimes prevent the accession of the fit, when no quantity, however great, can control it, after it has once set in."

Of the *antiphlogistic* powers of opium, Dr. Griffin expresses his high opinion in many parts of this book: and states that for many years he has almost entirely relied upon it for the subdual of enteritis and peritonitis. He bleeds first, however, in subjects who will bear depletion, employing calomel also when the disease is very intense, and resists opium powerfully—suspending this as soon as the symptoms give way, and giving the opium alone, whereby troublesome salivation is usually prevented. In *rheumatic* inflammation it is as useful. In acute inflammation of the *mucous membranes* opium was formerly supposed to be contra-indicated; but the cases published by Dr. Stokes and others of cure of inflammation of the mucous membrane of the bowels with exhausting diarrhœa, shew the propriety of the practice. Dr. Griffin attributes the evil effects which have followed the use of opium in these inflammatory affections to its having been given in too small doses, which in cases of mucous phlegmasiæ, suppress the diarrhœa without subduing the inflammation to which this had even acted as a relief. But in these, as well as in serous inflammations, bleeding must be premised where the strength will admit of it, applying at the same time warm poultices to the abdomen. In other cases, in which bleeding is out of the question, and opium seems powerless, as in bad dysentery, a combination of ipecacuan and opium acts sometimes surprisingly. Dr. Griffin alludes to two cases, in which he gave three grains of opium with from three to five of ipecacuan every two hours with the best effect.

Opium, producing in healthy persons a congestion of the brain, is con-

tra-indicated in inflammatory affections of that organ and of the spinal-marrow; but when it is "combined with tart. emet. in sufficient doses it seems to possess an extraordinary power of allaying nervous irritation, quieting increased action in the capillary vessels, and inducing sound and refreshing sleep. In very many cases of puerperal mania, of delirium tremens, and in the delirium which arises in the advanced stages of fever, its effects are wonderful. Medical science is much indebted to Dr. Graves for having directed the attention of the profession to this most valuable combination, and pointed out so accurately its proper application."*

Dr. Griffin believes the great restorative power which opium possesses in *exhaustion from hæmorrhage* depends principally upon its property of producing congestion in the brain, and thus restoring tension to the cerebral vessels. In imminent danger five grains should be at once given, and two or three every hour or half-hour "until the pulse becomes distinct, the breathing quieter, and the tossing or flinging about in bed is allayed." Internal and external stimuli are of course to be conjoined with it.

We have extracted largely from this valuable chapter; for, although perhaps the author may somewhat over-rate the powers of this remedy, we feel convinced, from our own observation, that these are not sufficiently appreciated by the profession at large; and that the more the properties of this invaluable drug are inquired into the greater *will be the estimation in which it is held.* The rules and cautions given by Dr. Griffin are very important; for many of the evil effects supposed to have arisen from the inappropriateness of the remedy, have done so, in reality, from the timidity or want of discrimination of the prescriber.

8. *What Principles should regulate the Treatment of Hæmoptysis?*—The object of this paper is not to enter into an examination of the general subject of the treatment of this disease; but to protest against the excessive use of depletion and low diet in severe and repeatedly-recurring hæmorrhage. Dr. Griffin observes that he was first led to contemplate the unsatisfactory nature of this practice by comparing the cases in which it was resorted to, with others that presented themselves at the Dispensary, in many of which, immense quantities of blood had been coughed up many months before, the patients being still alive, not having observed, or having refused compliance with, the lowering treatment. Alluding to a case, in which all nourishment was refused to a patient dying of hæmoptysis to the last, he says—

"Of one thing I am convinced, that in all such diseases the patient should be allowed to die of the hæmorrhage, rather than of the debility following the interdiction of all food. Neglected cases daily prove to us, that even very alarming hæmorrhages may not prove immediately fatal although no abstinence be practised, while no one can doubt the certainty of speedy death if blood is daily bursting from the lungs, while all possible supplies in the way of food are cut off from the circulation. Setting aside however, altogether, those extreme cases

* "Dr. Graves directs 4 gr. of Emet. T. and 2 drachms of Laudanum to be mixed with half-a-pint of camphor mixture; two table-spoonfuls of which are to be given for the first dose, and one every half-hour afterwards, until the delirium abates, or some signs of drowsiness appear."

in which no possible treatment can succeed, I am still strongly impressed with the belief, that the principles upon which this rigid abstinence is imposed, is in almost every instance of protracted hæmorrhage an erroneous one." P. 206.

The hæmorrhage, active at first, becomes, sooner or later, passive, when its suppression is to be sought from means capable of giving tone to the capillary vessels; and thus menorrhagia and other uterine hæmorrhages, allayed by depletion at first, eventually often require stimuli and chalybeates. It is true, after the heart and vessels have recovered their tone, hæmorrhage may again be excited; but this has reference rather to the extent to which nutriment is given than to the principle upon which it is allowed or withheld. Those practitioners who are deterred in consequence of observing occasionally a recurrence of hæmorrhage after giving food, should observe—

"That, to form a fair inference on the subject, it should be considered, that at the commencement of such cases, recurrences of hæmorrhage often take place, perhaps every third or fourth day, whatever treatment is adopted; that the excitement occasioned by the nutriment is often rather the effect of a morbid irritability of the vascular system, arising from prolonged starvation than of its direct stimulant power; that this irritability, like the hæmorrhagic action of the pulse following extreme losses of blood, will diminish, in proportion as we can gradually restore strength to the system by the administration of the mildest nutriment; and that it should more properly suggest the necessity of giving sedatives to allay it, than of recurring to a system of prolonged starvation, which in the highest health no constitution could resist, and under which in disease no reparative process could possibly be accomplished." P. 208.

Dr. Griffin adverts to the danger there exists in diminishing the tone of the capillaries, of congesting the bronchi or lungs, or inducing infiltration of blood. Moreover, this excessive depletion has a direct tendency to induce pulmonary consumption, by deteriorating the vital powers.

"There is the less defence for the practice I am contending against, as we are not without remedial agents which are little inferior to bleeding for the arrest of hæmorrhage, yet leave no permanent debility. I have seen very frightful cases of hæmoptysis subdued by an emetic of Ipecac., and by the continued administration of it afterwards in grain or two-grain doses every hour. Emetic tartar has also been successfully employed, and, when once the attack has assumed a passive character, it is well known that many other remedies prove highly influential." P. 210.

9. *How should Acute Rheumatism be treated.*—In passing the various modes of treatment under review, Dr. Griffin observes that *free depletion*, from a mistaken supposition of the identity of the disease with ordinary inflammation, is discountenanced more and more as our experience of the disease increases. "It will indeed appear that the average period occupied in the cure by it is longer, the success more doubtful, the pain more considerable, the danger of metastasis and of relapse greater, and the convalescence more tedious, on comparing it with other methods to which we shall presently advert." *Colchicum*, aided by moderate depletion and antiphlogistic regimen, is generally successful. Dr. Griffin has occasionally found, as well as Dr. Hope, obstinate and even dangerous diarrhœa attend its use, and by no means considers it either the most certain or most

safe remedy. *Tartar-emetic* has been given by Dr. Griffin in even larger doses than Laennec and Louis employed, viz., a grain every hour for many consecutive hours. The first dose or two were usually vomited, but if tolerance then ensued the cure was often astonishingly quick, in cases even of many days' prior duration. Diarrhœa sometimes occurred, but it was generally easily arrested. It failed in its effects, however, in more than two-thirds of the cases. "On the whole it appears evident, that while emetic tartar administered in large doses occasionally displays a singular and extraordinary control over acute rheumatism, we are yet at a loss to determine in what cases it is more particularly successful, or how its influence can be more extensively applied."

The author next adverts to the modes of treatment employed by Drs. Corrigan and Hope as far superior, as regards their certainty, the time occupied, and the freedom from metastasis or relapse, to any others. In all these advantages the one is little superior to the other; but in some cases the one, and in some cases the other plan may be most advantageously adopted, while in a third category the two modes may have to replace each other. Dr. Corrigan's treatment consists in the administration of one or two grains of opium every second or third hour, or of ten, twelve or more grains in the twenty-four hours. He dwells upon the importance of the dose being thus sufficient and full, a less quantity, given seldomer, only producing the stimulant and injurious effect of the drug.

"The opium should always be increased in dose, both as to frequency and quantity, until the patient feels decided relief; and should be then kept up at that dose until the complaint is steadily declining. The first indication that tells the practitioner that he has reached the proper dose, is the statement of the patient, who, in reply to an inquiry as to how he has passed the night, probably says that he has not slept, but that he is free from pain, and feels comfortable. This effect having been attained, the opium may then be continued in repetitions of the same dose as to frequency and quantity."—*Corrigan.*

Dr. Griffin has, however, found in some cases stupor, headache, and constipation (although in many others the bowels continued quite regular,) obliging him to have recourse to Dr. Hope's plan. This consists in the administration (after one or two bleedings in the robust only,) of gr. v ad x hyd. sub. with 1½ ad 2 gr. opium every night, and a purgative, which will act four or five times at least, every morning. The following draught, given three times a day, expedites the cure. ℞. Vin. Colch. ℥x-xx. Pulv. Ipec. co. gr. v. M. Salin ʒx. Syr. ʒj. M. When the pain and swelling are much abated, which usually happens within two, and almost always within four days, and before this, if any tenderness of the gums occurs, the calomel is omitted, continuing one grain of opium at bed-time, and in some cases at noon, as also the colchicum draught, and morning senna purge. Dr. Griffin observes that, where a sore-mouth supervenes, the cure will have to be completed by the opium plan; or, if there is not much pain left, by quinine and potass. hydr. "Salivation can never occur in these cases, any more than in abdominal inflammation, or in cholera, unless the use of calomel be persevered in after the symptoms have completely given way, and a cure in part effected. So long as acute disease lasts, mercury will not salivate, but a single dose given after the disease has given way may do so, and the difficulty of avoiding it generally arises from the influ-

ence of our own apprehensions, which tempts us to continue the remedy beyond the absolute necessity, for fear of a relapse."

Disease of the heart is rare under either of these modes of treatment; but when discovered, large and repeated doses of calomel and opium are essential. When the rheumatism threatens a chronic form, or the attendant fever assumes a hectic character, quinine or the hydriodate of potass in full doses are of great use.

There are yet three other papers in the volume, whose analysis want of space forbids our undertaking. One of these, from the pen of Dr. D. Griffin, consists in a refutation of the usually received law of visible direction. The second is a long and interesting essay upon the questions, "Does suffering necessarily imply self-consciousness? Are sentient beings necessarily percipient?" in which Dr. Griffin opposes the deductions of those physiologists who assume the identity of consciousness and sensation, and hence the absence of the latter in the decapitated animal, and endeavours to explain the various movements, &c., in this condition as merely automatous or instinctive, however strong the expression of animal suffering may seem. He likewise criticises the somewhat hasty generalizations of Dr. M. Hall. The last paper, entitled "Observations upon the application of Mathematics to the Science of Medicine," is a laboured recommendation of the Numerical Method, without, however, as far as we can perceive, advancing any new argument in its favour, or meeting successfully the objections which have been made to its adoption as a guide to practice.

Dr. Griffin is correct in stating that English practitioners have acquired a great distrust of the method from one of the first fruits of its adoption by M. Louis, viz., the astounding conclusion that "bleeding is injurious rather than beneficial in inflammation of the lungs!" He explains the source of the mistake of this celebrated pathologist; but we must not lose sight of the important cautionary lesson; for if so grave an error can occur during the working of the system in the hands of its inventor, aided by the co-operation of a numerous corps of zealous and trained disciples, acting too in so favourable a field for observation as a large hospital—what must we expect from the endeavour to carry its application into the investigation of more complex diseases, by the hands of practitioners possessed of every variety of competence, acting independently of each other, and hardly possessed of forms of expression in common. Of all dangers a fallacious certainty is the greatest.

The lengthened notice we have bestowed upon Dr. Griffin's work proves the value we attach to its contents; and certainly any success it may meet with will be due to its own intrinsic merits and not to any care his publisher has bestowed upon it. We, however, say nothing about its general getting up; for we think that unnecessary expense is often incurred in sending out medical books in a style more fitting for the drawing-room library than for the practitioner's book-shelf; but we must protest against the disgraceful printing of the work, the innumerable typographical errors which crowd every page, rendering its perusal actually painful to the eye.

RECUEIL DE MEMOIRES DE MEDECINE, DE CHIRURGIE ET DE PHARMACIE MILITAIRES. Vol. 58. 8vo. pp. 396. Paris, 1845.
A Collection of Memoirs on Military Medicine, &c.

ALTHOUGH their African possessions have otherwise proved of little service to the French nation, they have afforded a wide and useful field of research for the army medical officers, who have availed themselves of it in the most diligent and praiseworthy manner. We well know in this country the value of a corps of medical observers of this kind, not a few of the improvements in our modes of treating diseases having originated with our naval, military, and Indian practitioners. The medical officers attached to the army of Algeria are likewise, from time to time, transmitting to their mother country valuable memoirs and observations, which are submitted to the Army Council of Health, and published biennially in the "Recueil," whose latest volume we have now in hand. We observe in the practice of the African medical officers an emancipation from the shackles of hypothesis, and an energy and appropriateness of treatment—the result of an independent spirit of observation—which sooner or later must exert a beneficial influence on the more theoretical and timid practitioners at home. The present volume is chiefly devoted to the consideration of the important subject,

THE DISEASES OF THE LIVER IN ALGERIA.

Although the practitioners of this country have been made, through the writings of their brethren in India, familiar with the influence of hot climates in generating and modifying diseases of the liver, it can but be interesting and useful to note the conclusions other inquirers have arrived at under analogous circumstances. These will be found confirmatory of those we are already in possession of.

The first paper, upon *Hyperæmia of the Liver*, is from the pen of Dr. Haspel. This officer, who seems a very intelligent practitioner, contributed an essay to a former volume of the "*Recueil*," upon *Abscess of the Liver*, to which we shall have occasion to advert presently. In it he observed that that disease seemed frequently to present itself in a sudden and insidious manner, by reason of the practitioner not having had the opportunity, or not having availed himself of it, of observing the antecedent condition of the organ. In the present paper he endeavors to indicate a condition of the liver, which in one of its varieties frequently terminates in the formation of abscess. He terms it *Hyperæmia*, and believes that it is too frequently overlooked as trifling, in consequence of attention not being paid to the evils it may eventually give rise to. The *Hyperæmia* may present itself to notice either in an *active*, or in a *passive* form, the forme being distinguishable from hepatitis only by its greater mildness.

Active Hyperæmia of the Liver.—In the hot months of June, July, and

August, numbers of soldiers apply to the hospital, having a deranged condition of the digestive organs with predominance of symptoms referable to the liver, as loaded tongue, constipated bowels, icteric conjunctivæ, pain in hypochondrium, &c. Sometimes there is only anorexia or difficult digestion complained of, and pain or tenderness in the region of the liver is only detected by a practitioner alive to the true nature of the case. The patient is usually relieved, but relapse is exceedingly liable to occur, and the disease then takes on a chronic form, the patient often temporarily improving so as to lead to the belief that his disease is far milder than it really is. Persistence in the loss of appetite and an anormal condition of the bowels, even when there is little or no pain, serve to indicate the chronic form. Could the soldier be placed now under favorable hygienic circumstances as regards diet, fatigue, exposure, &c., he might recover; but as the very contrary is the case, he too often, after the cold weather has commenced, returns to the hospital, which he had quitted in good spirits, having a yellow and squalid countenance, and a considerable tumefaction in the right hypochondrium. When these patients die, the liver is found much engorged, sometimes softened and sometimes denser in structure, usually of a reddish color, but diversified by other shades. When they have been cut off at an earlier stage by some complication, the liver may be healthy in appearance, but is usually voluminous, and always the seat of more or less local or general sanguineous congestion.

Passive or Hypostatic Hyperæmia.—Persons of weak constitutions suffer severely in Africa when the prolonged and burning heats of summer are exchanged for the cold, wet, and variable temperature of autumn—especially if from any cause they may have been the subjects of chronic hyperæmia of the liver. The fluids repelled from the surface become accumulated in the internal viscera, especially the liver—producing a passive hyperæmia, which, however, may easily pass into a state of active inflammation, and give rise to abscess or ramollissement. There is here, too, more or less derangement of the digestive organs, uneasiness or pain and tumefaction of the hypochondrium, and icteric tinge, especially of the conjunctivæ. In some cases this last, with colorless stools, and deep-colored urine, are the only symptoms.

The *chronic form* of passive hyperæmia (the *hepatitis occulta sive typhoida* of the ancients,) is however far more dangerous than this, as, from its insidious approach, it frequently commits irreparable destruction before even its existence is discovered. So little, sometimes, is the disturbance produced in the economy, that a person having an enormous liver may yet retain all the appearances of good health, and patients may die without suffering any pain whatever in the hypochondriac or epigastric regions. In other cases, the straw-colored complexion, peculiar physiognomy, and great wasting, plainly indicate the implication of some vital organ. In robust subjects, there is more reaction, in the shape of remittent and hectic fever. The liver is far more enlarged than in the acute form, the blood pouring out on incising the organ, and especially from its right lobe. More or less ramollissement exists, and vast purulent deposits are frequently found.

Treatment.—In the *active form* careful diet and mild aperients suffice in slight cases, and in severer ones, free bleeding and afterwards an emetic or two. In the chronic stage, moxas and blisters are useful; but a sea-voyage, return to Europe, and a course of mineral waters, are the best measures. In the *acute form* of *passive hyperæmia* general bleeding is rarely proper, as inertia of the secretory apparatus and atony of its circulation are the characteristics of this state. Purgatives and emetics are indicated, and mercurial frictions may afterwards be used over the enlarged liver. In the *chronic* form a supporting regimen, tonics, and stimuli are called for.

The author thus sums up the points of distinction between active and passive hyperæmia:—

"*Active Hyperæmia.*—1. Is especially developed in the months of June, July and August. 2. Dry, arid, heat is one of its most active causes. 3. It attacks robust and bilious habits by preference. 4. It is often accompanied or preceded by a slight phlegmasia of the superior portion of the intestinal canal. 5. Its causes especially affect the super-diaphragmatic organs, producing parotiditis, deafness, epistaxis, &c. 6. It generally terminates by resolution, sometimes by hypertrophy of the organ, rarely by suppuration. 7. The lesions are found indifferently in any portion of the liver. 8. Local and general bleeding form the basis of treatment, purgatives are only sometimes useful, and tonics are contra-indicated.

"*Passive or Hypostatic Hyperæmia.*—1. Is observed especially in September, October, and November. 2. Common causes are damp and cold weather suddenly following great heats, and repeated paroxysms of intermittent fever. 3. It attacks weak subjects, whose viscera are of uncompact texture, and especially when these persons are debilitated by fatigue, chronic disease, diarrhœa, &c. 4. It most frequently co-exists with irritation of the large bowels, so that it is sometimes difficult to say which organ is first attacked. 5. The crises are operated upon the sub-diaphragmic organs, producing dysentery, hæmorrhoids, &c. 6. Suppuration is a common termination, hypertrophy a rare one. 7. The right lobe is especially affected. 8. Bleeding is rarely proper, mild purges are indicated in the acute, but rarely in the chronic form, when tonics are essential."

The next paper relates to an interesting subject, which we have alluded to in the reviews of Mr. Webb's Pathologica Indica and Dr. Budd's Treatise on Diseases of the Liver, contained in our last volume. It is entitled

On the Coincidence of Hepatitis and Abscess of the Liver, with the Endemic Diarrhœa and Dysentery of the Province of Oran. By Dr. Catteloup.

Of 157 deaths that occurred during eighteen months in the hospital-practice of Dr. Catteloup, and in two-thirds of which diarrhœa or dysentery had prevailed during life, there were, in 65 cases, notable marks of disease of the liver, such as congestion, anormal colour, fatty degeneration, abscess (of which there were 20 examples,) ramollissement, &c.

In analysing Dr. Catteloup's remarks, we may also allude to Dr. Haspel's Paper upon *Abscess of the Liver*, which appeared in a former volume of the "Recueil."

1. *Etiology.*—(1.) *Climate.*—The prevalence of a form of hepatitis

terminating in abscess seems peculiar almost to this province of Oran, for with the exception of two cases occurring at Algiers, none others have been reported from other parts of French Africa. MM. Catteloup and Haspel concur in attributing the production of the disease to the frequent and sudden vicissitudes of temperature rather than to intense heat. In fact, the agency of heat chiefly operates in Summer by congesting the liver, and rendering it liable to become inflamed under the influence of the chilling of the surface produced by the cold mornings and evenings of Autumn. In this part of Africa, there are no stagnant or marshy districts capable of generating intermittent-producing miasmata. The Arabs, however, who are so much exposed to the vicissitudes of the season, and take such inefficient precautions against them, are seldom the victims of the disease; but then a long training from infancy has blunted the susceptibility of the cutaneous surface, and these men avoid the stimulating diet of the Europeans. It seems that length of residence in Algeria increases the liability of the soldier to hepatic abscess, and in none of the 20 cases cited had the patient been less than a year in the colony. Dr. Catteloup took some pains to discover whether soldiers brought from the northern parts of France, or those who came from districts whose temperature more nearly resembled that of Algeria, were most liable to the disease. He found that, as regards simple dysentery, there was little difference in this respect, but that this became complicated with hepatitis and abscess most frequently in soldiers who had been drawn from the north of France.

(2.) *Habits of Life.*—Unless the European upon arriving in a warm climate adopts the temperate habits of its inhabitants he is likely to fall a victim to his own imprudence. The stimulating food and drink even requisite in cold climates are poisonous here. Almost all the cases recorded in this Essay occurred in persons of intemperate habits. The soldier, too, has to struggle against the *adverse hygienic conditions* in which he is placed; and truly, according to the picture drawn by these and other writers, the condition of the French soldier in Algeria as regards food, exposure to weather, excessive duty, bad lodging, &c., is truly pitiable. The superior position of the officers in these respects, and their less dissipated habits, nearly exempt them from the disease we are treating of. M. C. attributes much mischief to the enormous quantity of ripe and unripe fruit consumed by the soldiers, especially when they are only partially convalescent from other diseases.

(3.) *Constitution.*—Endemic disease especially affects the feeble, desponding, nostalgic, young, or lymphatic subject. In such, the viscera easily become congested, and we have diarrhœa or dysentery set up. Acute hepatitis terminating in suppuration usually occurs in the more robust subjects.

(4.) *Age.*—From 21 to 36 are the ages during which the liver most frequently becomes diseased. In only two out of the 20 cases of abscess was the patient less than 25 years old.

2. *Pathological Anatomy.*—The following general results of post-mortem examinations in hepatitis may be stated. The *lungs* were usually found exsanguineous and very rarely tuberculous. The *heart* usually small and healthy. The *stomach* and *small intestines* were mostly found unaffected,

although symptoms resembling gastritis or duodenitis may have prevailed. In the *large intestines*, however, every possible mark of inflammatory action, from a mere blush to perforating ulcers and gangrene, were observed. The cæcum and sigmoid flexure were the especial seats of disease; but however extensively the ulceration, &c., may have involved the intestine, there were always, at intervals, small healthy portions to be observed. This same almost constant coincidence of inflammation of the lower portion of the intestinal canal, with attendant diarrhœa or dysentery, (so contrasted with the affection of the upper portion of the canal, and constipation observed in Europe,) was also observed by M. Haspel in his cases. As to the *liver* itself, the first degree of change in *general hepatitis* differs only from congestion, inasmuch as the blood, instead of running out on incision, seems identified with the granular structure of the liver. To this succeeds ramollissement, with different shades of colour, in which the texture of the organ is torn easily, although it does not lose its cohesiveness, like softened spleen. As matter is formed, greyish or whitish shades are produced by the deposition of the molecules of pus among the granulations of the organ, preparatory to constituting diffused suppuration, and eventually sometimes a vast abscess. Usually, however, the hepatitis and consequent abscess are more *partial*. If the abscesses are numerous, they are not usually voluminous, but in most cases there is but one. The right lobe is by far the most commonly affected, and the abscess is much oftener deep-seated than superficial. The process of formation of these isolated abscesses, from the period of congestion and discoloration of portions of the liver to the generation of a false membrane and their subsequent enlargement, is well described, but we have not space to do more than recommend the perusal. There is, however, one change, frequently found in the liver of dysenteric and other patients in Algeria, which, from its great interest, we must allude to;—we mean the *fatty degeneration*. M. Catteloup observes,—

"In the course of our researches we have remarked the frequency of a change of structure in subjects, who, offering every appearance of phthisis, yet were quite exempt from tubercle—I mean the yellow-looking and fatty liver. Every one is aware of the rarity of tubercles in Africa. Can it be that they are replaced by a morbid condition of the liver whose frequency is almost as great relatively to other affections, as is that of pulmonary tubercles compared to other diseases in France. Do the modifiers of the animal economy in Algeria possess the power of destroying in the *thoracic* lung the disposition to contract this pathological condition, but at the expense of its production in the *abdominal* lung? In France, the coincidence of the fatty liver and phthisis is frequently observed: in Algeria, this morbid condition is observed alone, no disease existing in the lung."

The rarity of the prevalence of pulmonary phthisis in Algeria may be judged of by the fact, that M. Haspel, in 1841, only found three persons affected with it out of 1840 hospital patients; and only one of 138 deaths was caused by it. So, in 1842, in all the hospital establishments of Algeria, of 8485 patients there were but 13 phthisical; and but 10 out of 871 deaths occurred from phthisis!

3. *Symptoms.*—Practitioners would be often disappointed if they always

expected to see these as distinctly marked as they are enumerated in books. This is only so when the cases are seen early, and pursue an active course. In others, large abscesses and other ravages may have taken place with *little or no indication of their existence*, unless these had been specially sought for. The concurrent affection of the intestine sometimes furnishes nearly the only symptom, and masks those of the other disease. M. Haspel delivers many cautionary observations as to the insidious manner in which the disease may come on, among which are the following:—

"This affection is liable to take on the appearance and symptoms of most of the chronic affections of the chest and alimentary canal, or it may become concealed by the symptoms of other diseases existing simultaneously with it, as diarrhœa or dysentery. Sometimes it offers all the characters of an apyretic gastro-intestinal affection, and at others is accompanied by an intermittent fever of the tertian type. The degree of pain it gives rise to is very different, and sometimes this does not exist at all. Many patients only complain of pain when they walk or employ other exertion. The pain may be pungent, lancinating, and acute like that of pleuritis, or, at other times, dull and obtuse, extending from the liver to the lungs, and rising sometimes as high as the shoulder."

M. Catteloup presents a general sketch of the symptoms in the three separate stages of irritation, inflammation, and suppuration. But, in place of transcribing this, we prefer following him in his detail of the separate signs of the disease.

(1.) *Pain.*—This is the most important symptom, and one which, even alone, is sometimes sufficient to indicate the impending danger to the liver. It must, however, not be confounded with that affecting the large intestine in dysentery. It may be distinguished from hepatalgia by the more severe, lancinating, and paroxysmal character of the latter. It is not always confined to the right side, but may sometimes extend to the epigastrium, or even the left hypochondrium. At others, it is absent entirely. The pain in the right shoulder, set down in some works as so constant a sign, is seldom met with in Algeria.

(2.) *Tumefaction.*—When the size of the liver is augmented, it can hardly be overlooked if percussion is employed; but sometimes the organ maintains its normal size, especially if the abscess be small or deep-seated, so that little information is usually obtained from this sign in partial hepatitis. Moreover, after a long residence in Africa, the liver, although otherwise healthy, acquires a larger size than in France. However, in hepatitis, the organ is oftener found enlarged than of normal size, and never less than natural.

(3.) *Icterus* is only indicative of hepatitis when combined with the above signs, for it is equally present in hepatalgia and other diseases. M. Haspel states that he seldom found icterus present in the cases of hepatic abscess he reports as occurring at Oran; but M. Simon found it very marked in others occurring at Mascara in the same province. But the patients at Oran were old cases and debilitated subjects, and those at Mascara were men in robust health, who were suddenly attacked while performing forced marches under a burning sun.

(4.) *Pulse and Febrile Re-action.*—During the stage of irritation the pulse may be quiet and normal; but when inflammation is set up, it be-

comes quick and hard. If such change takes place in the pulse during the progress of a dysentery, we have every reason to believe that hepatitis has complicated the disease. M. Haspel represents the pulse as continuing small and normal, or even slower than natural, until towards the termination of the disease, when it becomes rapid, and increases in quickness and energy *pari passu* with the prostration of the patient. An increase of number and power of the pulse, during the night, especially if accompanied by sweating, should give rise to a very unfavorable prognosis, even when there is no apparent sign of local disorder. A paroxysmal fever may precede the congestion and inflammation of the liver, but in this part of Africa it seldom declares itself until the disease is fully formed. The shivering announcing the formation of matter has not unfrequently been mistaken for intermitting fever until quinine has been exhibited unsuccessfully. The *respiration* is more or less embarrassed in proportion to the suddenness of the encroachment of the enlarged liver upon the thoracic cavity. To whatever extent the patient's suffering may eventually be carried, or his prostration extend, no reaction takes place in the brain, the intellectual powers continuing clear and complete to the last.

4. Although the *prognosis* is of the gravest character in hepatic abscess, as most of the patients die, yet recovery occasionally takes place after the evacuation or the absorption of their contents. Cicatrices of former superficial abscesses have been several times met with. A curious case is related in a former number of the "Recueil." A soldier, after five years' service in Algeria, was admitted with hepatic abscess into one of the hospitals there in 1837. It discharged itself spontaneously under the right false ribs, and he resumed his duties. He, however, since has repaired to the hospital, at intervals of about three months, in order to have the abscess punctured, and issue given to new collections of matter; so that, at the period of the report, in 1840, such punctures had been made 24 times.

Before proceeding to the consideration of the treatment of this compound disease, hepatitis and dysentery, M. Catteloup alludes to the difference of opinion which prevails as to the determination of which of its two elements should be placed in the position of cause, and which in that of effect. He observes he has never seen a case in which the hepatitis should be looked upon as other than the effect, diarrhœa or dysentery having in all preceded the hepatic symptoms. He agrees in the *modus operandi* by which this is brought about, as stated by M. Bouillaud, and also indeed by Dr. Budd (see p. 500 of our last No.,) viz., the absorption by the venous radicles of some of the diseased matters abounding on the disorganized intestinal surface, and their consequent conveyance into the portal system. The liver, already predisposed by the congested state produced by the heats of summer, or an injudicious regimen, then becomes irritated and inflamed.

"But this action is confined to the hepatic organ. The purulent generation is not here, as in phlebitis, a general phenomenon localizing itself in all the viscera by the transport of a puriform inflammation. In the description of cases we are engaged with, we have never seen any trace of venous inflammation, or any appearance of pus circulating in the blood. It is not then a true purulent resorption, whose symptoms are usually so formidable, but merely the transport of a

deleterious substance, of a certain morbid product by the blood, which, however inappreciable by our means of analysis, is no less real."

Treatment.—The treatment of this compound disease is often difficult, for vigorous procedures appropriate for the hepatitis, are by no means so for the dysentery. In the early stage of irritation, when bilious diarrhœa is the principal symptom, the author chiefly relies upon the due regulation of diet and other hygienic precautions. He forbids the endeavoring to check the diarrhœa by means of emetics, the effect of which would only be, if successful, to congest the liver. If we wish to prevent suppuration, the inflammatory stage must be met by a full general bleeding, and that even where mere local tenderness is our only indication of treatment. Leeches or cupping must follow, and in cases where the dysenteric symptoms are severe, and the patient's powers low, we must content ourselves with these latter, or even with powerful revulsives, as moxas, cauteries, &c. Mere dysentery, without fever, or great pain, is best treated by careful diet and starch glysters, and where there is pain, by leeching or cupping over the colon. If the pain is great, and seated near the liver, and the patient plethoric, general bleeding, and afterwards numerous relays of leeches, must be had recourse to, applying the latter especially to the iliac fossæ. Emetics are to be discarded as often useless for the dysentery, and injurious to the hepatitis. As the active symptoms and fever diminish, opiates become very useful, and may be advantageously combined with calomel and ipecacuanha.

There is always great danger of a relapse, especially if the diet is too full after the first relief of urgent symptoms. In relieving the dysentery by medicines alone, the importance of attention to hygiene has been too much overlooked, which accounts for a great deal of the frightful mortality once so prevalent in the barracks in Algeria, and now so much diminished. Above all things, the patients should not be crowded together. Two dysenteric patients placed in proximity soon become adynamic, and diarrhœa from a like cause quickly passes into dysentery.

During the suppurative stage, antiphlogistics must be laid aside, and means for maintaining the general strength resorted to—still employing external emollient and counter-irritant applications; and administering internally, opiates, Segond's pills, quinine, &c. Both M. Catteloup and M. Haspel believe the cases are very rare where opening the abscess by incision or caustic would be justifiable, or even possible.

We regret our space prevents our transcribing any of the twenty cases detailed and very ably commented upon by M. Catteloup; but they, together with M. Haspel's cases in the 55th Vol. of the "Recueil," form a valuable body of information on the history of suppurative inflammation of the liver.

We hope this interesting subject will be pursued in a future volume of the "Recueil." The present position of the French in Algeria indicates there will be no lack of *matériel* for some time to come.

SPINAL AFFECTIONS, AND THE PRONE SYSTEM OF TREATING THEM; BEING AN ENQUIRY INTO THE NATURE, CAUSES, AND DIFFERENT METHODS OF TREATING DISEASES AND DISTORTIONS OF THE SPINAL COLUMN, &c. By *James Coles*, M.R.C.S.E. 12mo, pp. 320. London, 1845. Houlston and Stoneman.

THE subject of Spinal deformities is one that demands the very serious attention of medical men, not less for the importance of the malady involved, than for the great discrepancy of opinion that has too long (it must be confessed) prevailed as to the best method of its treatment. The publication of the present volume gives us the opportunity of bringing the matter under the notice of our readers, and of making them acquainted with the most recent observations that are calculated to throw light upon it. Without further preface we shall at once introduce Mr. Coles to their acquaintance.

In the following passage, he gives a lucid description of the (often) obscure symptoms in the incipient stage of a Lateral Curvature of the Spine.

"The attention of the mother, or governess, of a young girl who is becoming the subject of lateral curvature of the spine, is first attracted by the appearance of inequality, either in the shoulder or hips; and this inequality is more readily detected, if either party has been absent from the other for a short period. It is likewise not uncommon for the attention of a parent to be first drawn to the circumstance by a friend, or casual visitor. This inequality consists not, at this time, of the one shoulder being elevated above the other, but of its appearing to be thickened and larger, and in older girls this unequal appearance is also conspicuous in the breast of one side, generally the right.

"Again, it sometimes happens, that an irregular and unsteady mode of walking first excites attention; the ankle on one side seems weaker, and an appearance of limping in the carriage is observable. When the patient runs or walks fast, the limb of the affected side in being brought forward, is thrown outwards, and swung in advance, as it were, with a jerking effort not easily described, but readily detected by a person previously acquainted with the symptom. This affection of the leg, which is the result of inequality at the hips, is apparently so little connected with the vertebral column, that I have often witnessed the incredulous smile of friends, when, on being consulted for this supposed weakness of the ankle, I have requested to be allowed to examine the back of the patient.

"On doing so at this stage of the disease, and tracing the vertebral column, with ink, from the neck to the loins, the distance of the two shoulder-blades, from the line so marked, will be found unequal; the right, towards which the column in the majority of cases curves, being nearer, by from one-eighth of an inch to half an inch, than the left; and if in addition a plumb line be applied to the spine, this inequality will be found to arise from the curvature of the column, and not, as was previously supposed, from a growing out of the shoulder. At this early period the only other conspicuous appearance in the back will be a slight sinking in of the right loin, and a proportionate fulness of the opposite side; and in cases where the peculiarity in walking above described exists, a slight elevation of the hip on the left side."* P. 38.

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* The diagnosis will be much assisted, if the patient be made to bend her body well forwards, the arms being crossed upon the chest, "until the spine is

The constitutional health is generally delicate, and in very many cases, the growth of the body is unusually rapid, the girl shooting up in height like a tender sapling that has not strength to keep it upright. She is often blamed for stooping or sitting awry; whereas these positions are the immediate, and almost necessary, results of the spinal weakness and irregularity. Mr. Coles, like every judicious practitioner, deprecates the use of immoderate exercise, either in or out of doors, in such cases. The general health must be invigorated, and the patient should rest a great deal in the recumbent posture; the amount of exercise, to be taken at proper intervals, being regulated according to the circumstances of each individual case.

If the case has been neglected or mismanaged, the spinal deformity will become aggravated in the following way:—

"The spine now begins to assume not only a curved but also a rotated form, having in fact become twisted upon its axis; the attachments of the ribs on the right side are thus carried outwards and backwards; the ribs themselves are compressed and bent, and thus made to form a projecting ridge posteriorly, sometimes of considerable magnitude, and adding greatly to the appearance of deformity; on the opposite side, the attachments of the ribs to the spine are carried inwards and towards the right, the whole of the left side is consequently depressed, and flattened; and the shoulder-blade accompanying the ribs, is drawn below the level of its fellow, and is more or less displaced. As the disease progresses, and the debility increases, the distorted column begins to project backward as well as laterally, bringing with it the right shoulder and the projecting ridge of ribs, the body tilts over to the left side, which becomes so sunken, shrivelled, and depressed, that the ribs are not unfrequently found to rest upon the ascending hip, and the deformity becomes complete." P. 45.

The chapter on the predisposing and exciting causes of spinal curvature contains many valuable and judicious observations. Mr. Coles very properly traces the deformity in almost every case to constitutional debility, the ill effects of which are too often most wilfully aggravated by fashionable absurdities in the management of dress, by overstrained education, and so forth. We cannot however agree with him in supposing that a genuine *strumous* diathesis exists in all, or even in the majority of instances; unless, indeed, we consent with M. Lugol to apply that term to all cases of constitutional weakness.

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brought into a considerable curve, and the skin become tightly drawn over the prominent spinous processes, like that over the knuckles of the closed fist; by this attitude the column will be made straight longitudinally, even if a considerable curve exists when the body is erect. Each of the projecting points throughout the column should now be marked with ink, or charcoal, indigo, or any other convenient colouring matter, and the patient again directed to stand upright; if any curve exists it will be now apparent, by the marks which still form a straight line down the back, not being found in their places over each of the spinous processes of the vertebræ, and this will be still more minutely traceable in difficult cases, by having recourse to a piece of small twine or thread, and placing one end of it on the prominent bone which is situated at the bottom of the neck, and the other on the lowest vertebræ of the loins, where it joins the pelvis; this, by connecting the perpendicular line of spots made by the ink, will show the minutest deviation even of one single bone in the vertebral column."

John Hunter pithily remarked, "I am convinced that people get awry by the endeavours of parents to keep them straight." Certainly nothing has tended more to increase spinal deformities in modern times than the absurd and pernicious use of tight stays; and all those other artificial means that have been devised by fraud or by folly to improve the figure of young females.

"There is another remark," says our author, "of Hunter's, which, properly understood, is replete with valuable instruction, and which applies to an error more prevalent at present than any other in the physical management of youth; I mean the habit which many parents and teachers have acquired of watching every movement and attitude of their young charges, with a view to correct every inelegant or unstudied position of the body.

"'If it be necessary from fashion, and so on, to carry the person in any particular manner, this habit may be attained at any period of life. . . . . You see a ploughboy, whilst plodding at the plough, an awkward fellow; but he enlists, is placed under a drill sergeant, and then observe how altered in every respect he becomes.'" P. 104.

Mr. Coles is no friend to "those senseless and dangerous substitutes of the present day for the elegant and healthful exercises of a less theoretical age, the modern gymnastics: these have superseded for a time (and it will be only for a time) the practice of dancing and fencing, which tended to produce in our forefathers that superiority in real grace of deportment, which is generally acknowledged to have belonged to the last century."

In the treatment of Spinal Distortion, there are three points that should invariably be kept in view—1, to relieve the affected part of the spine from the superincumbent weight of the head and shoulders; 2, to remove any active disease in this part (if such be present), and afterwards strengthen and invigorate it; and 3, to attend to the constitutional health of the patient. There can be little difference of opinion among professional men not only as to the propriety, but also as to the means to be adopted for the purpose, of effecting the two latter objects. Probably, too, all will agree that the first-named indication is of primary importance; but, hitherto certainly, there has not been much accordance among medical writers as to the best mode of accomplishing it in practice.

M. Coles disapproves of all sorts of patent stays and other instruments that have been recommended as artificial supporters of the spine, such as Chesher's collar, Tavernier's spring-belt, Marshall Hall's electrotyped copper stays, back boards, shoulder-straps, straight-backed chairs, &c. He very justly remarks:—

"If the nature and causes of distortion of the spine, be those which I have previously endeavoured to prove them to be; if, in fact, muscular debility has any connection with the disorder, then, as a general principle, all artificial means of supporting the back, which remove from the muscles their natural stimulus to action, whereby alone they can recover their vigour, must be injurious; and when, combined with the suspension of muscular action, the parts are subjected to considerable and long-continued pressure, as must always be the case from the use of steel stays, and most other spinal supports, the injurious effects are very considerably augmented.

"It is a law of the animal economy, that the exercise of an organ is necessary, not only to its perfection but to its preservation; as also, that if the various parts of the body are not kept in a due state of activity, they degenerate and waste

away until they lose their natural appearance and character, and become altered even in structure." P. 118.

The only safe and effectual mode of taking off the superincumbent weight of the head and shoulders from the distorted spine is to have recourse to a judicious and regulated employment of the recumbent position;—but not, as hitherto has been too much the case, by confining a patient for months and even years to the supine posture, upon a hard inclined board, condemned all the while to utter inactivity.

The main object of our author's work is to show the superior advantages of the *prone* over the *supine* position, in the treatment of spinal deformities.* The objections to the latter are manifold and serious. 1. The injurious effects of pressure, not only upon the integuments covering the sacrum, trochanters, and other projecting bones, but also upon the bones themselves, at least in those cases where the distortion consists in a posterior or angular projection of the spine, are well known to every one. The continued pressure upon the muscles also cannot fail to interfere very seriously with their restoration to health and power: nay, it may even lead to a very considerable absorption of their substance; and, as the flexors of the body are naturally more powerful than the extensors, how much mischief may be caused by the slightest lesion of this sort, we need scarcely say. We cannot therefore be much surprised that a confirmed stoop is a very frequent result of the prolonged use of the reclining board. 2. The continued pressure of the thoracic viscera upon the spinal and sympathetic nerves, and upon the great blood-vessels† that lie under the anterior surface of the vertebral column, can scarcely fail to produce a certain amount of disturbance in the functions of innervation and circulation. Hence probably the headaches, difficulty of breathing, palpitations of the heart, indigestion, obstinate constipation, weakness of the bladder, hæmorrhoids, varicose state of the veins and œdema of the legs, &c., which are not unfrequently observed in patients who have been long confined to the horizontal supine position. Besides these and similar ailments, such invalids often experience a marked impairment of vision, in consequence of the manner in which the rays of light fall upon the eye, and of their reflection from the white ceiling of the room, upon which the eye must necessarily rest during the greater part of the time spent upon the plane.

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* To Mr. Bampfield, in his prize essay on Curvatures and Diseases of the Spine, published in 1824, is unquestionably due the merit of having first publicly recommended the use of the prone position in preference to the supine. Dr. Verral may indeed have employed it, in an improved form, a year sooner in his private practice; but there is no evidence to show that he made any public notice of it for six or seven years afterwards. It is therefore positively absurd in Mr. Coles to claim for his friend "the priority and originality of the invention."

† Mr. Liston, in his recent course of lectures on the diseases of the bones and joints, published in the Lancet, thus speaks of the treatment of spinal diseases. "In the first place, the patient should be kept perfectly quiet, so that the growing together of the parts may be encouraged. *Perhaps the prone position, about which so much has been said lately, is the most favourable*, as it takes the pressure off the diseased parts, and prevents the carious bodies from falling in upon one another. *It also assists the return of the blood from the numerous veins contained in the bodies of the vertebræ, and in the spinal canal.*" P. 162.

Among the leading advantages of the prone position (upon a properly-constructed couch, "carefully fitted to the patient's size and admitting of easy variation in its angles,") we may mention the facility of access to the distorted or diseased parts, for the purposes of remedial applications, friction, and so forth; and the steady and constant extension of the spine that is maintained by the mere weight or dependence of the lower extremities, (resting on the sloping position of the couch,) which, it will be obvious, may be kept flexed at the hips to a greater or less degree, according as the circumstances of each case may require.

"The effect of this gentle and continued extension is most beneficial. In cases of curvature only, it materially assists in straightening the back and correcting the deformity, but in all cases of active disease it is of the greatest benefit and importance. In caries of the bones of the spine and ulceration of the cartilages, its effect being to separate the diseased surfaces, and to counteract the pressure which even the contraction of the muscles occasions and renders injurious, one principal cause of absorption of bone and increase of deformity is removed, inflammatory action is allayed, and the relief thus obtained is soon manifested by a subsidence of the most distressing symptoms—pain, a tendency to paralysis of the lower extremities, and increase of the projection." P. 195.

Mr. Coles assures us that several patients affected with *paralysis* (especially when occasioned by external injury or by irregularities of the spine,) have regained the use of their limbs by the simple employment of the prone couch; the extension of the vertebræ, thereby produced, having the effect of relieving the spinal marrow and its nerves from all injurious pressure which may be present.

The prone position is well suited for the treatment of *Psoas Abscess* also. "In the early stage of this disease, while it may be hoped that active remedial measures might be the means of preventing the formation of matter, it is clear that in no other position can the patient be so advantageously placed, as well on account of the perfect quiet that it affords, as the extraordinary facility which it gives for the application of the various remedies. In the incipient stage of the disease of the vertebral column, the prone position is still more imperatively demanded; and, in that case, as well as in inflammation or injuries of the spinal marrow, or of its investing membranes, the long continued and most perfect quietude in which the patient may remain, is assuredly a most important recommendation." When pus has formed and pointed in the groin, it will obviously find a much more ready exit in the prone than in the supine position of the body. In many cases, too, of *Hip-joint Disease*, the greatest comfort and relief will often be experienced by the patient lying upon his face; there is moreover the advantage of the affected part being easily reached for the application of remedies.

In that species of Deformity of the Chest, which consists in a flattening and depression of the ribs laterally, and in an unusual projection of the sternum, the use of the prone couch, along with such exercises as serve to strengthen the muscles that extend from the arms and shoulders to the chest, will be found to be much more simple and efficacious than the employment of direct pressure with the hand upon the projecting portion of the chest, as recommended by Dupuytren.

One great advantage of the prone position is that the patient can not

only amuse himself with reading, writing, drawing, and such like studies, but may also practise various exercises with both his upper and lower extremities—exercises that will have a most beneficial effect in strengthening the muscles of the back, and in correcting the spinal irregularity. The appetite and digestion, too, are usually much better in patients treated in this manner than in those who are kept for a length of time lying upon their backs; the moderate stimulus produced by gentle pressure upon the stomach, and the more ready exit of the food into the bowels, appearing to act beneficially in this respect.

Mr. Coles very properly condemns all merely mechanical means of producing *extension of the back* in cases of spinal distortion. The only safe and rational method of obtaining this result (when no active disease exists in any part of the vertebral column) is through the medium of the muscles themselves; as, for example, by having recourse to the following expedient:—

"In front of a common prone couch is placed a small table; round the waist of the patient, whilst reclining on the couch, is fastened a belt, from which a cord on each side passes downwards and backwards to the bottom of the couch, then, passing over a pulley on each side, they return horizontally to the front legs of the table, between which a cross bar stretches on a level with the pulleys at the bottom of the couch; here, passing over other pulleys, they ascend to the top of the table; another pair of pulleys enable the cords to pass that angle, and they then terminate by being inserted into a turned handle of hard wood, like a large ruler, of the required length; the patient grasping this handle at the utmost stretch of her arms, the cords are to be tightened to the necessary degree at the belt round the waist, and the patient then directed to pull herself forward by means of the handle; as she does so, of course, she is held back by the belt round the waist, the effort puts all the muscles of the shoulders, ribs, and chest, into powerful contraction, and the result required is obtained." P. 229.

A more simple plan consists in the patient, on the prone couch, grasping the edge of a table sufficiently wide to oblige her to extend her arms to their full length, the cords for the waist-belt being made fast to some fixed point behind her, either of the door or wall, against which the bottom of the couch must also press; she then draws herself forward by the arms as before.

When the curve is situated high up in the vertebral column, or in the neck, extension may be effected by the use of a head-swing.

"A padded strap passes under the chin and round the back of the head, the ends meeting just above the temples, from them a strap on each side passes about six inches above the head, where they unite and terminate in a hook; this is fastened, when required to be used, over the loop of a double cord, which passes upwards to a beam or door-way, and over two pulleys fixed in the wood-work; these cords then again descend and terminate in small handles, just within the reach of the extended arms of the patient, she grasps them, and by pulling downwards raises herself off the ground by the head and arms, thus combining both active and passive extension in one operation." P. 231.

In the selection of the Exercises to be recommended for the treatment of lateral curvature in its early stage,—provided always there be no existing local irritation—our author judiciously insists upon the importance of the principle or general rule that the muscles of the back and loins should be brought into active and steady, but not fatiguing, play.

Swinging by the hands—using a skipping-rope, always "backwards," as girls term it—bending the body backward and forward over the end of a sofa or the back of a low chair—sham-rowing—raising a weight attached to a rope which is made to pass over two pulleys, one in the floor and the other in the ceiling*—walking with a weight upon the head, or suspended in front of the body by a strap passed round the shoulders or occiput—these, and other such like exercises may unquestionably be productive of very decided benefit. "In cases where the unequal action of the muscles of the back require that those on one side should undergo a more vigorous discipline than those of the other, the means for its accomplishment are equally simple, and within the reach of ordinary application. Of these, turning a wheel, either with the right or left arm as the case may be; raising the weight of the pulley with one hand; drawing the cord to which it is attached horizontally from a pulley in the wall of the room, with the hand of the debilitated side; are some of the most effective."

We need scarcely say that, along with the employment of the means to which we have been alluding, the general health must be strengthened by

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* Mr. Coles very justly disapproves of the too common practice of having only one pulley, and that in the ceiling; the exercise then being to raise the weight from the ground by pulling the handle, affixed to the loose end of the rope, downwards. He explains the very different effects of these two modes of exercise by the following illustration. "One occupation peculiarly exemplifies the effects of the unequal employment of the different classes of muscles, aud some of my most effective means of applying local exercise for the cure of deformity, were constructed in accordance with the principles which are here illustrated, and after examination of numerous examples with one uniform result. The two men employed at a saw pit would, at first sight, appear to be doing much the same sort of work, and in much the same kind of manner; and perhaps my readers may feel some surprise at being, for the first time told that no two occupations can be more opposite in their effect upon the muscles of the back, than that of the man who works above the piece of timber to be cut, and that of the laborer in the pit. Such is the fact, however; the former exerts all his strength in lifting the heavy saw, and throws its handle, with a kind of flourish, high above his head, to the extreme reach of his arms; this he does by a vigorous exertion of all the muscles of the back and loins, and the attitude of a fine man at the moment when his arms are thus elevated, his body thrown back, his legs perfectly straight, and his feet close to each other, whilst his head is slightly bent forward, and his eyes fixed upon the line of chalk at his feet, is one of extreme grace and manly vigor. The effect of such an employment is to communicate a portion of its freedom and grace to the general carriage of the artizan, and 'top-sawyer' has become a proverbialism for designating a fine smart manly-looking young fellow. The occupation of his companion in the pit is of a different character, his active duty commences at the moment when the other's ceases; and the saw being elevated as high as it will go, he applies all his strength to perfect the cut which results from its descent, and to pull down the instrument, which his mate has pulled up, as low as it will go. In doing this, the principal muscles engaged are those situated on the front of the body, or the chest, abdomen, and thighs; in fact, the antagonists of those employed by the top sawyer. The result produced is as opposite as the means which produce them. The pitman acquires a round-shouldered stooping gait, and may easily be distinguished from his fellow by these peculiarities." P. 250.

inhaling a pure air, the use of a nourishing diet, and the exhibition of various tonic medicines, more especially of *steel*; to which small doses of *iodine* may be advantageously added, whenever there is reason to suspect the existence of a scrofulous taint in the constitution.* For further particulars we must refer our readers to Mr. Coles' work; it is written in a candid and unassuming spirit, and will be found to contain many most judicious observations on the subject of which it professes to treat. The only drawbacks to this expression of our praise are that he alludes to an apparatus which he has invented for the benefit of his patients, but which he omits to describe; and that, in the narration of some of his cases, there is a very unnecessary introduction of the name of the Queen Dowager, Lady Elizabeth Tufton, and so forth, as recommending patients to the Verral Charity, of which he is the surgeon. One lady writes to him in the most affectionate manner that "the most happy circumstance in my life was the conversation I had with the dear kind friend, who first made me known to the prone couch, and the excellent system you practise in connection with it." This sort of trash should be avoided in every respectable professional work.

THE NATURE AND TREATMENT OF GOUT.—By *William Henry Robertson*, M.D., Physician to the Buxton Bath Charity. 8vo. pp. 372. London, 1845. Churchill.

THOSE who are accustomed to the task of reviewing, know full well how much more easy it is to analyse and report upon certain works than upon others. In many cases where some difficulty is experienced, this arises not so much from the abstruse and unattractive nature of the subject discussed, nor yet from the extent and intricacy of the details that are necessarily advanced, as from the want of a lucid exposition and an orderly arrangement on the part of the author. Some men have the happy tact of enucleating every subject that they take in hand; they quickly perceive where the germ or kernel is lodged; and, without spending much time in minutely examining each separate envelope with which it may be invested, they proceed to the core at once; and this they do so cleverly that others are surprised at their own want of skill in waiting to be taught. But the thing is not so easy as might be imagined; for the dexterity, that is so much admired, is the result not of inconsiderate rashness, but of previous patient and elaborate practice. He who can get quickly at the pith and substance of a work that he reads, has been at one time, we may rest assured a laborious and pains-taking student: his very quickness is the offspring of past toil. This prompt perception of the truth is a most important qualification in any one who aims at being a lucid and instructive writer; and it is from the too common want of it that so many of our

* The tincture of Iodine will be found a useful outward application in several forms of spinal disease.

modern authors fail in attaining the end to which they aspire: viz., that of impressing their own thoughts and sentiments upon the minds of other people.

There are few terms in medical language, that have given rise to greater errors, in practice as well as in theory, than that of Gout. What definition shall we give of it?—we hesitate to reply; for there is none that will bear the test of criticism. Take, for example, that recently proposed by Dr. Copland, one of the most practised writers of the day. *Constitutional disorder, giving rise to a specific form of inflammation; often favored by original or hereditary constitution; appearing after puberty, chiefly in the male sex; returning after intervals; generally preceded by, or alternating with, disorder of the digestive or other internal organs; and characterised by affection of the first joint of the great toe, by nocturnal exacerbations and morning remissions, and by vascular plethora; various joints or parts becoming affected after repeated attacks, without passing into suppuration.*

Now when we say that the disease is *characterised by an affection of the first joint of the great toe*, the remark is perfectly true as regards Podagra, or, as it is frequently called, Regular Gout; but certainly not as regards various morbid states to which the term gout is universally applied. The misfortune is, that the same name is used to designate very different maladies; the confusion having arisen in consequence of a *generic* being substituted for a *specific* appellation. When we talk of gout in the stomach we mean a very different—different not only in its locality but also, at least often, in its very nature—disease from gout as it manifests itself in the feet or hands. The one may be, and very frequently is, a purely spasmodic malady; while the other is invariably attended with a greater or less amount of inflammatory action. To call, therefore, Gout an inflammation—even although we indicate its peculiarity by adding the epithet *specific* to it—is surely not correct; seeing that various morbid states, recognised as different forms or manifestations of gout, are unquestionably not of a phlogistic character. In place of regarding Gout as an individual and substantive disease, it should be viewed as a diseased condition of the system; for, in truth, it is a cachexia, or dyscrasis, or morbid diathesis quite as much as either Scrofula or Scurvy. No one would think of defining Scrofula by describing any one of its numerous and diversified forms; nor yet would it be ranked among the Phlegmasiæ; and yet we need not say how very frequent alas! scrofulous inflammation is known to be. But then, inflammation is not the only way in which Scrofula manifests its existence; and he indeed knows little of the practice of his profession who would apply the same remedies to this disease, (inflammation,) when it exists in a scrofulous, as when it occurs in a healthy individual.

Dr. Robertson has fully appreciated the constitutional nature of gout, and he labors to establish the position in various parts of his volume. We adduce the following passage, one out of many, in which he alludes to the influence of hereditary predisposition, for more reasons than one.

"Gout rarely becomes hereditary, without some portion of cachectic predisposition being transmitted at the same time. A man rarely acquires the gouty habit, without rendering his system more or less cachectic. The amount of cachexia will depend on numberless circumstances. Cachexia, of course, most frequently occurs unconnected with gout; but it may be doubted, whether gout ever occurs

without more or less of cachexia. To the production of gout, circumstances are necessary that are not indispensable to the production of cachexia—whether simple cachexia, or this in combination with other morbid conditions. The breathing an impure air for a long time, whether vitiated by miasmata, or putrescence, or imperfect ventilation,—excessive venery, with or without the disease so frequently consequent on its indulgence—abuse of fermented liquors—excess or deficiency of nourishment, or the being confined to too few articles of diet—are some of the principal causes of cachexia, to which various superadded circumstances give a peculiar form and character. Whatever has the effect of superinducing plethora—of rendering the supply of alimentary matters in the blood greator than their expenditure—may probably have the effect of inducing whatever is the proximate cause of gout; or this may be modified or counteracted by some other agent, favoring the production of some other disease in its stead. In confirmation of these views, it is not uncommon to find cachexia traceable in a family history in some one form, as in that of severe irregular gout, producing in the different individuals of the existing race different cachectic diseases. One may be phthisical, a second have glandular disease of strumous character, a third may have articular rheumatism of cachectic character, a fourth may have irregular gout, a fifth scrofulous disease of the joints, and a sixth have died in infancy of mesenteric or hydrocephalic disease; and all these cases may be apparently traceable to the original influence or taint. It might perhaps, then, not be saying too much to affirm, that gout, in all its forms and degrees, is connected more or less with cachexia; and it is at all events true, that there is always this connection in the worst forms of gout." P. 173.

There is much that is not only ambiguous, but of very questionable accuracy, in this extract. The Cachexia, of which Dr. R. speaks, seems to the reader as if it were a something that is superadded and accessory, rather than as essential, to "the gouty habit." According to our view of the question, this habit—in other words, the constitution of the body in which gouty maladies are apt to occur—necessarily implies an existing dyscrasis or unhealthy condition of the blood and its secretions. The cachexia, which is induced by breathing a vitiated atmosphere or by penury of nourishing food, has nothing to do with that which is characteristic of gout; and as to endeavouring to establish any family alliance between gouty and scrofulous disease, the observation of most medical men is surely against it.

There is one paragraph in the preceding extract to which we would especially invite the reader's attention; it is that where allusion is made to the immediate influence of Plethora in "inducing whatever is the proximate cause of gout." Now this, we may remark, is the key-note that pervades the whole performance of our author from beginning to end. It is variously modulated and expressed in different sections of the work, but still it may be recognised in every part, giving, as it were, a general tone and character to the entire composition. To prevent all mistake as to the meaning of the term, we shall select one or two passages where it is more particularly described.

"Using the word plethora to mean that condition in which the blood is probably excessive in point of quantity, and deficient in its proportion of serum, the red particles being in excess, and redundantly charged with fibrine, it is, as far as we know, the predisponent of gout; and it may not be too much to say, that every person affected with it, is more or less liable to gout; a liability which may be added to, or diminished, by many circumstances, and which may never end

in the disease, but terminate in some other ailment, or may be relieved or diminished by change of habits, or by the alterations consequent on advancing life, till the plethoric state gradually passes away, with its risks and its dangers." Page 51.

In another passage, Dr. R. thus expresses himself:—

"From the account of the remote causes of the gouty diathesis, it will have been gathered, that it is by inducing or adding to a plethoric habit, that they produce this diathesis, and that plethora is probably the predisposing cause of gout. It should be remembered that plethora is not confined to those cases in which much is added to the fluids and solids of the system, but includes those cases in which less of the solids and fluids is expended than is received; and that consequently a man of spare habit, who is abstemious and temperate, may, by taking too little or too much sleep, or by sleeping at irregular periods and at variable times or by long-continued sedentary habits, or by taking exercise at irregular periods and in varying amount, or by using his mind unduly produce in his system the same result, as the bon-vivant and intemperate arrive at by an opposite route. This explains the apparent anomaly of people so different as the sedentary, spare, pale-faced student, and the bloated and unctuous high and full feeder, and the gross, and rubicund, and pimple-faced sot, should so often be victimised by the different diseases to which plethora lays the train; and it serves to give intelligibility, correctness, and simplicity to the various means advised for the prevention of gout." P. 39.

This doctrine of the plethoric origin of Gout—a doctrine, by the bye, that has been so elaborately worked out by Dr. Barlow, of Bath, although we find no allusion to his writings in the present work—leads our author occasionally into some very untenable positions. We have already found him asserting that, "it may not be too much to say that every person affected with it, (plethora,) is more or less liable to gout"—an assertion which must surely have dropped from his pen by sheer inadvertence—and in another place, he attributes the increasing tendency to the recurrence of the disease, after every successive fit, to the circumstance that "plethora is more easily kept up, and more easily reproduced than originally engendered." We do not at present dispute this fact; but we certainly cannot admit its application as our author intends; for, is it not an occurrence of very frequent observation, that the attacks of Gouty disease often become more and more frequent in their returns, and more severe in their character, just in proportion as the patient's flesh and strength decay?

True it is, that Dr. Robertson, in other passages of his work, has very materially qualified the above proposition, and that, in one of these, he ascribes the increasing inveteracy of the malady rather to "a loss of tone or vital contractility in the vessels of the (affected) part, or to some mysterious and undiscovered cause," than to an actually plethoric state of the body; yet he is continually making reference to an overcharged and redundant quantity of nutrimentary matters in the blood; and, on one occasion, he goes so far as to compare the influence of the gouty habit to that "of periodical losses of blood, whether naturally or artificially produced, the consequence of which we know to be increased action of the formative, and diminished action of the destructive organs, and an eventual addition to any tendency to fulness of the general system."

But let us not be unfair to our author, by omitting to mention that it is chiefly in the light of a *predisposing* cause of the disease that he attaches

so much importance to vascular Plethora. Yet even in this point of view, many will be of opinion that he has very much over-rated its influence—provided always we are to comprehend, under the generic term of Gout, the various morbid states that are generally recognized to belong to it. That an over-replete state of the vessels, with a rich and highly animalised blood, will render a person more liable to *arthritic inflammations* than he would be if he were of a more spare habit of body, we may readily admit, without recognising the truth of the hypothesis which Dr. R. labours so perseveringly to establish.

But we shall not dwell more upon this topic at present, as it may again come under our consideration when we allude to the diagnosis between Rheumatism and Gout. Meanwhile we wish to make a few remarks upon some of the other predisposing or remote causes of the latter disease; and of these, more particularly upon the alleged influence of hereditary liability, and of inordinate exercise of the intellectual powers. Let us first hear what our author says upon these matters. Almost at the very commencement of the Introductory Chapter of his work, we read that—

"It is chiefly the highest ranks of life, and the most thinking classes of the community, that are attacked by this disease; the liability to its influence does not extend to the masses of the people; but it is with few exceptions, confined to those who have raised themselves, or been raised by the exertions of their fathers, above the level of their fellows. The higher the rank, the more pure and noble the blood, the greater the powers of mind, and the more those powers are used, the nearer the man is to the time of life when his intellect is the most vigorous, the more liable is he to become the victim of this disease." P. 2.

Again, at page 195, after a high-wrought picture of the miserable condition of many a gouty old invalid, we are presented with the following somewhat grandiloquent passage:—

"We find the man of high and noble feelings, of pure and mighty thinkings, the highly intellectual and moral, the little sensual, the highly born, or the self-ennobled children of the world,—the deep and close thinker,—the man of letters and hard study,—the successful soldier,—the lawyer whose mental toils have been incessant, and unvarying, and whose labors have been crowned with all of fame that he could have dreamed of, or hoped for,—the statesman, capable, by nature, and as a consequence of hard thought and study, of wielding the interests and destinies of his country,—these men, and such as these, the foremost men of the world,—among the ordinary and the sad victims of this unsparing disease; and not only these men,—but their offspring, the lineal inheritors of the organization that prepared them physically for gaining and accomplishing so much, inherit their diseases more surely than their talents and intellectual and moral capabilities." P. 195.

Now it seems to us that, although there is a certain amount of truth in these statements, there is at the same time, a vast deal of fallacy. The mere rank of the individual, the nobility of his blood or the capacity and exercise of his intellectual faculties, have really very little to do with the development of gouty disease, except in an indirect and subordinate manner. We do not, as a matter of course, deny that the disposition to gout is often, very often, an hereditary penalty for the follies and vices of one's progenitors; for most truly it may be said of this malady, that "*the* fathers have eaten sour grapes, and their children's teeth are set on edge."

But to assert that "the higher the rank, the more pure and noble the blood, the greater the powers of mind, and the more these powers are used, ... the more liable is a person to become the victim" of Gout, is little more than a mere flourish of words. True, a member of the Howard or Talbot stock may be more liable to the disease than the son of an industrious tradesman, more especially if the one drinks his claret or port every day, and the other indulges in such luxuries but two or three times a year; but then we are not to forget, at the same time, that the former, if he chooses, may very generally avoid (or nearly so) the evil, by the adoption of two very simple expedients—temperance in diet, and regular active exercise. And as to the vigorous employment of the intellectual powers being a provocative of gout, what think ye of such men as Wellington and Napoleon? We never understood that either of them was liable to it; and why?—simply because both, in spite of their incessant mental occupations, were uniformly (and, thank God, one still is) most temperate and active in their mode of living. Nearly the same thing may be said of Scott, Southey, and many others, whose literary labours have been truly prodigious in point of extent. As to the constantly quoted case of Sydenham, who expressly tells us that the composition of his treatise on Gout brought on repeated attacks of the malady, be it remembered that his system at the time was, so to speak, *charged* with the morbific principle, and that little was required to cause its explosion. If studious men will neglect certain simple hygienic rules—which are obligatory upon all—and neglect, for example, to take proper exercise, or indulge unduly in the pleasures of the table, they will doubtless be more liable to gouty disorder than if they were more attentive to these rules; but the morbid tendency is the result, not so much of the excessive intellectual exercise, as of the faulty corporeal regime. Who ever heard of a poor poet being the victim of Gout, although, day by day, he racked his brain (and even the night was not given to sleep) in giving birth to his prolific strains; or of the weary clerk, whose pen is in his hand for 12 or 16 hours a day, being laid up with so aristocratic a disease?

Nay, the very exercise of the mind seems to be often antagonistic to, and in some degree a corrective of, the development of Gout in those who may be predisposed to it, whether from hereditary infection, or from intemperance of diet; provided, always, due corporeal exercise be taken at the same time. What but the mental and bodily activity of such a man as Brougham, who has led anything but a Rechabite's life, has kept him in a great measure intact? Again, it is not the post-captain, while engaged in the arduous duties of foreign service, that is apt to be laid up, but the retired commodore, who is confined to *port;* nor do we often hear of the hard-working curate, on a hundred pounds a year, having the honours of a swathed toe; these he leaves to his sleek and stalled superior.

It must not, however, be supposed that we at all question or deny the influence of Hereditary predisposition in the production of gout. Who can be surprised at it? Horace has said, with his usual felicity:—

> Fortes creantur fortibus et bonis:
> Est in juvencis, est in equis patrum
> Virtus:—

and truly the *vice*, no less than the *virtue*, of parents is found in their off-

spring still more frequently among human beings, than among cows and horses. The remark holds true equally of the mind and body; and what the poet subsequently says of the culture of the one, is as applicable to the management of the other.

> Doctrina sed vim promovet insitam,
> Rectique cultus pectora (corpora) roborant:
> Utcumque defecere mores,
> Dedecorant bene nata culpæ.

As to the influence of hereditary descent in reference to gout, there is less reason for surprise, than touching perhaps any other malady to which the human frame is liable; and for this simple reason. that the offspring, besides inheriting an enfeebled constitution, too generally follow the very same habits of living that have probably engendered the disease in their progenitors. Dr. Robertson, like most other experienced physicians, calls in question the vulgar assertion that gout has a tendency to pass over one generation and re-appear in the next.

"That one or even two generations of such families do sometimes remain free from gout is certainly true; and that this immunity does not necessarily exhaust the hereditary influence, although it must greatly diminish its degree, appears to be true; but that the grandchildren of gouty people are more likely to be gouty than their children, supposing the children to continue free from the disease, is unquestionably one of the many vulgar errors." P. 10.

The Chapter on the Exciting Causes of Gout may, we think, be fairly excepted to in many particulars. Dr. R. regards atmospheric changes as the most common and influential, while irregularities of diet and excesses in the pleasures of the table are declared to be only occasional or "not uncommon" causes. We should be inclined to reverse this order of things; nor do we agree with our author in attaching more importance to the stimulant and repleting effects of wines and malt liquors, than to their tendency to generate lithic and other acids in the system. Certain it is, that it is not the spirit-drinker, but the wine-drinker, that is usually the victim of Gout. The disease is of exceedingly rare occurrence in those who are much given to intemperance in the use of alcoholic liquors, even when the diet is at the same time rich and nourishing, and the blood (we may therefore reasonably suppose) is highly charged with fibrinous matter. Here then we have the very condition of the system that ought, according to Dr. Robertson's views, to give rise to the malady; but that such is not the case, we may appeal with confidence to the experience of every physician. Unless the *ingesta* are of such a nature as to be liable to create a tendency to the generation of acid matter in the stomach and bowels, they are not found, in the generality of cases, to occasion Gout. In what other way shall we explain a circumstance that is quoted by our author from Dr. William Budd's treatise on the disease, in the Library of Medicine.

"There is a body of men employed on the Thames whose occupation it is to raise ballast from the bottom of the river. As this can be done only when the tide is ebbing, their hours of labour are regulated by that circumstance, and vary through every period of night and day. They work under great exposure to inclemencies of weather; their occupation requires great bodily exertion, occasioning profuse sweating and much exhaustion. In consideration of this, their allowance of liquor is very large; each man drinks from two to three gallons of

porter daily, and generally a considerable quantity of spirit besides. This immoderate consumption of liquors forms the only exception, as far as relates to food, which these men offer to the general habits of the lower classes in London. Gout is remarkably frequent among them: and although not a numerous body, many of them are every year admitted to the Seamen's Hospital Ship, affected with that disease. This is a very interesting fact, and seems to show that no amount of bodily exertion is adequate to counteract the influence of such large doses of porter; the exposure of ballasters to wet and changes of temperature probably favours its operation. These men are almost all derived from the peasantry of Ireland; they can rarely, therefore, inherit a disposition to gout." P. 27.

It may, however, be fairly questioned, whether the disease among these men is genuine unsophisticated gout, or whether it does not rather partake a good deal of the nature of rheumatism,

So much for the predisposing and exciting causes of Gout. We come now to Chapter IV., which treats of "the nature, or proximate cause" of the disease. The opening paragraph is as follows:—

"Although it must be admitted that we do not know what is the proximate cause of gout, the condition with which the disease is intimately connected, and upon which its phenomena seems to be chiefly dependent, is well known. It consists in the deposition of lithic (uric) acid, and its compounds with alkalies, and principally with soda, in the fibrous tissues. It is this which serves to distinguish gout from other diseases, which is the principal feature of its morbid anatomy, and which guides its treatment, and influences its results." P. 69.

Our author afterwards, with a most teasing sort of hesitation which leads him neither wholly to adopt, nor altogether to reject any opinion, expresses himself in much less decided terms upon this etiological point; for we find him saying, that "all the phenomena of the disease do probably countenance the hypothesis, that the deposition of lithic acid always attends an attack of gout, and perhaps always precedes it. But, nevertheless, this is only hypothesis; and is only entitled to any attention, because it does not appear to contradict any of the phenomena of the disease, and because it does not militate against any one of the practical matters, which experience has shown to be useful and important, in its treatment and prevention."

Indeed!—is there not any better than this merely negative evidence to prove the intimate connection between the generation of this Acid and the development of gouty disease?

Dr. R. subsequently *appears* to shift his ground in his etiological reasonings; for we find him, towards the conclusion of his work, expressing his belief that "gout essentially depends upon an accumulation of nitrogenised and carbonised products—which accumulation depends, in its turn, upon their inordinate supply in the form of food, or their deficient expenditure by a proportionate supply of oxygen for the elimination of the one and the combustion of the other." We regret that any sound practitioner, like our author, should have committed himself to such vain and gratuitous phantasies as these. Not only does he adduce no proof whatever that there is any such redundancy of nitrogenised and carbonised elements in the system during the existence of gout, but he must also know full well that there are various morbid states in which there is unquestionably such a redundancy, while there is not a single symptom of gouty affection present.

And here we must guard our readers against too readily admitting many of those (unquestionably most ingenious) views of disease that have been propounded by Liebig and his followers. There is a tendency in the present day to carry the love for minute chemical and microscopical observations and disquisitions to an extravagant length, and to overlook many of the more obvious and easily-recognisable phenomena of living bodies in health and in disease.

This remark suggests to our minds one or two queries, which may be fitly introduced at this part of our enquiry, with a view (we frankly confess) of eliciting a satisfactory answer. *What is the condition of the blood in Gout? Has any analysis been made of it? and, if so, in what respects has it been found to differ from healthy blood?* These are most important questions, which stand in need of solution, before we can presume to speak with any degree of precision upon the "nature or proximate cause" of the disease; and yet, as far as we are aware, there are no data whatsoever to enable us to form any warrantable opinion. In the most recent work on Hæmatology—Simon's Animal Chemistry, translated from the German by Dr. Day—there is not even a passing remark as to the state of the blood in gout. We had hoped, indeed, to have met with some observations, if not positive facts, connected with this most interesting enquiry, in an elaborate treatise upon the disease, from an author who attributes so much to the condition of the circulating fluids in its production. The only passage that at all bears upon this subject is the following:—

"The character of the blood drawn can afford no guide as to the quantity that should be taken, or as to the advisability of repeating the venesection, in any arthritic disease, and, perhaps, least of all, in gout. In all such diseases, the state of the blood is probably much influenced, and at all events, the separation of the fibrine from the colouring matter, &c., after the abstraction, is accomplished more readily, and to a greater extent, than is either natural, or than is commonly the case in other equally inflammatory affections,—giving a remarkably thick coat of fibrine to the crassamentum, leaving the lower part of the crassamentum friable or little tenacious, and separating the serum from the crassamentum more entirely, than is usual in other cases of inflammation." P. 218.

After this merely conjectural (?) description of the blood in Gout—a description which is obviously much more applicable to Rheumatism than to Gout—we are favoured with the following most edifying interrogations:

"Is this state of the blood a mere attendant, or a cause, or a consequence, of the peculiar inflammatory action? or is it mixed up intimately with the habit of body predisposing to the peculiar inflammation? Does it depend on the blood being surcharged with carbonaceous matter, from undue action of the hepatic, or deficient action of the pulmonary functions? or does it not rather depend on deficient expenditure of the fibrine itself,—the waste, and already used, fibrine of the system being either imperfectly carried off, or an undue amount of nitrogenised matters being assimilated." P. 219.

Although the condition of the Blood in gout has hitherto been so entirely overlooked, there has fortunately been a good deal of attention paid, more especially of late years, to the character and general properties of some of the chief excretions from it. Of these, none is so uniformly and so decidedly disordered as the Urine, and, perhaps we may add, the matter

of Perspiration. In ninety-nine cases out of every hundred, there is an excess in the relative proportion of the Lithic acid; and in the remaining case there is probably an excess of the earthy Phosphates. What says our author upon this subject? While he admits that "the functions of the kidneys are much deranged in a large majority of gout cases, and more deranged than they are usually found to be in other disorders, which are attended with the same amount of constitutional disturbance;" he remarks in a subsequent passage, that "the action of the kidneys is not always affected, even in acute cases of gout, nor by any means necessarily in the gouty habit of body. In some of the worst cases of Gout that I have met with, the urine has never been deranged, in quantity or character, either during or between the paroxysms. But in such cases it has been invariably true, that some other organ has suffered in the direct proportion that the kidneys have been exempted from derangement. In these cases, the hepatic functions have generally been much affected, and have been peculiarly subject to derangement; or the heart, or the skin, has been especially liable to be disordered."

We must confess that we have our doubts as to the accuracy of Dr. Robertson's observations in the cases to which he alludes; and the more especially as it is well known that the urinary secretion is very rarely natural, whenever the hepatic functions are much disordered. Dr. Prout has pointed out the frequent connection of several biliary disorders with a tendency to lithic acid deposits in the urine.

With respect to the excretion from the skin, our author states that it "is often odorous and strongly saline, and is perhaps never in a healthy state during the paroxysm" of gout: he admits that it is occasionally acid. May we not, however, fairly presume that these statements are not so much the results of actual experiment, as the suggestions of what is most probably the case?

We wish now to draw the reader's attention to two not uncommon, although often misunderstood, forms of Gouty disease; more especially as their history, therapeutic as well as ætiological, seems to us to illustrate and give sanction to some of the sentiments expressed in the preceding pages; and first of

Gouty Catarrh.

This is a peculiar description of bronchial irritation which is apt to occur in certain gouty constitutions (although perhaps there has never been any *open* development or invasion of the disease), and is very well described in the following passage:—

It is "a condition characterised more by symptoms of morbid sensibility, than by those of undue excitement, but which sometimes takes on, and perhaps in all cases is disposed to take on, a more decidedly bronchitic character. This affection is marked by a peculiar dry and wheezing cough, usually occurring in paroxyms, which end generally in more or less of expectoration. This cough is more common in gouty people as life advances, for the obvious reason that old people are more subject than the young to bronchial affections. This affection is usually characterised by being little amenable to ordinary treatment, and more influenced by the condition of the gouty joints, than by the usual means by which bronchial affections are relieved or removed.

"Although thus closely connected with gout, and dependent upon it, this

bronchial affection is, nevertheless, often distinctly traceable to cold as its exciting cause; and cold and wet may exacerbate this, as any other form of bronchial irritation. When it takes on an inflammatory character, this affection must, of course, be subjected to the same treatment, as the bronchitis symptoms would otherwise indicate; but if the case does not assume an inflammatory character, the usual treatment of bronchial affections is in general of little or no use. The bronchial affection increases or diminishes with the fall or the increase of the localized gout, and is seldom got rid of for any great length of time, without a fit of gout in the extremities: unless, perhaps, during the summer months, when the increased action of the skin, and the less risk that the degree of its action may be suddenly diminished, lessens materially the amount of work to be done by the bronchial mucous membrane, and the risk of variation in the amount of its duties, thus removing a principal exciting cause of this morbid condition. It should be borne in mind, that, although not of common occurrence, this affection may herald, or even attend, the supervention of phthisis on the gouty constitution." P. 176.

This very troublesome, and generally most unmanageable, form of Catarrh is sometimes met with in persons who have never suffered from any obvious attack of gout, and do not inherit any tendency to the disease. If asked whether they have anything gouty about them, they will confidently reply in the negative; and, it may be, justly so. But then it will be found almost invariably that they have lived upon the most approved plan of generating the gout; viz, indulging their appetites, and drinking their three or four glasses of port wine daily. This is very generally the secret of the malady; and hence it is that, in nineteen out of every twenty such cases, very decided relief, if not a cure, may be effected by a mere change in the diet, after all the cough medicines in the world have been tried in vain, and the patient perhaps has been put to the expense and annoyance of travelling to a warmer climate to seek for a cure. Alkaline medicines are always useful in such cases; the proper time for taking them is usually from one to three hours after eating. Before quitting the subject of this cough, it may be worth while to remark that its severity is generally not a little influenced by the *temper* of the individual: *non rectius podagræ, quam iracundiæ, paroxysmus dici potest.* Hence it is apt to vary much on different days, quite independently of the weather; it is, moreover, always less severe when the mind is amused.

Gouty Neuralgia.

Upon this subject, Dr. Robertson remarks:

"The sheath of the nerves is not an unusual seat of irregular gout, forming what is called gouty neuralgia. This is generally a very severe and intractable complaint. It is probably the worst and most obstinate form of neuralgia, that does not depend upon organic changes, and is not therefore incurable. The history of the case—the individual having suffered from gout, or being predisposed to it, or having led such a life as to lead to the inference that the predisposition may have been induced—especially if strengthened by the presence of some symptoms of irregular gout, would serve fully to diagnose a case of this kind. The best and most speedy cure of this affection is to be found in a fit of regular gout. It may exist, in despite of all treatment, for years. It may have little effect on the general health; or it may derange it essentially, and superinduce serious or fatal disease, most usually, as it has seemed, of the heart. Like all the other forms of irregular gout, it is, in most cases, traceable to the suppression, or retrocession, or imperfect development of the disease, and is very generally mixed up with

general debility. The sciatic nerve is by far the most common seat of this form of gout; and sciatic gout is the name by which it is commonly distinguished; but occasionally, although very much more rarely, the nerves of the face, or of the upper extremity, are affected by it. That it is essentially gouty in its nature, is, perhaps, sufficiently proved by its history, its *irregularly* paroxysmal character, its origin in the gouty system, and more or less directly from imperfectly developed gout, and by the immediate relief obtained by a developed fit of gout. In general, this form of neuralgia is less influenced by change of weather than ordinary neuralgia; but there are too many exceptions to this, to make it of decided value as a means of diagnosis. If not the most immediately alarming form of gout, it is very tedious, uncertain, and difficult of management, and one that often exhausts the patience of the sufferer, if not of his medical attendant. A thorough change of habits, mode of life, place, kind of air and scene, is almost always indispensable to any hopeful treatment of this affection; and the occurrence of gout in some other tissue is what is to be most wished for." P. 190.

That many cases of Neuralgia are connected with a gouty diathesis, or, in other words, with the existence in the system of that peccant material which is always present in gout, will be admitted, we should think, by most practical men. So far, Dr. Robertson is, in our opinion, perfectly right; but we cannot agree with him that "the best and most speedy cure of this affection is to be found in a fit of irregular gout," or "that the occurrence of gout in some other tissue is what is to be most wished for." Why so?—if the cause of the neuralgic suffering be known, and if we possess remedies, the judicious employment of which will almost infallibly neutralise and perhaps altogether subdue the operation of this morbific cause, why should we desire that our patient may have an attack of regular gout? Such a desire is only to be entertained, one might fancy, in those cases where the physician has overlooked the real origin of his patient's malady, and where, therefore, the obvious development of the gouty disease, in the foot for example, will have the effect of opening his eyes to the true nature of the case.

The following case of *gouty neuralgia of the intestines*, which occurred in our practice several years ago, may be aptly quoted here. A gentleman, 60 years of age or thereabouts, and who, twenty or thirty years before, had suffered for a length of time with that form of Bronchial Irritation to which we alluded in a preceding page, had, at intervals of various duration, an attack of severe pain in the left iliac region; this part became exceedingly tender on pressure, so that it was generally deemed advisable to leech and foment the part, as well as to administer antiphlogistic medicines to keep down the febrile irritation that was present. The attack usually lasted for three or four days; but a certain degree of tenderness remained in the groin for several days longer. Several medical men had visited him, and more than one suspected that there was incipient organic mischief forming in the descending portion of the colon. If so, how came it to pass that the attacks were (irregularly) periodic, and that, in the intervals between them, the patient was quite exempt from all uneasiness? Upon the urine being tested in one these intervals, it was found to be decidedly more acid than in health; and, coupling this fact with the circumstance that the patient had at a former period of life suffered from a gouty complaint, we deemed it advisable to put him upon a course of alkaline medicines, and prohibit the use of all vinous and malt

liquors. The result was most gratifying. For the next twelvemonths, he remained almost entirely exempt from a return of the abdominal attacks.

We come now to a point in the history of gout that deserves much attention, and which, although it has been often discussed, is far from being well understood, or definitively settled—we allude to the *diagnosis between Gout and Rheumatism*, more especially between the chronic forms of the two diseases.

Our author at first admits that the diagnosis is often "difficult and sometimes undecidable;" for he says:

"In both, gout or rheumatism may have been unknown, or unheard of, in the preceding generations of the family, or both may be believed to have been present; in both, the age may be the same; in both, the habit may be equally plethoric; or equally cachectic; in both, neither rheumatism nor gout may have been felt in the passed years of life; in both, the urine may indicate undue acidity, or not: in both, the stomach may be out of order, or the digestion little affected; in both, there may only occasionally be felt any pain or uneasiness of the affected parts, which may have become gradually swelled, stiffened, charged with hard deposition, and contracted; and such cases may, indeed, often be diagnosed with much difficulty." P. 206.

Yet, after this alleged most striking family likeness, the two maladies are declared to be essentially different and distinct from each other. Is there not some incongruity in all this? and is not the incongruity rendered still more remarkable by the circumstance that, among the diagnostic marks enumerated as existing between the two diseases, we now find our author expressly making mention of gout as a "complaint untraceable to cold and very little, if at all, aggravated by change of weather;" whereas, in the very first sentence of his third chapter we read, "of the exciting causes of gout, those which act the most commonly and the most influentially, are changes, and especially sudden and great changes, in the temperature, &c., of the air."

That there is a difference between Rheumatic and Gouty disease, no one can reasonably deny; but certain it is that Dr. R. has not assisted us in discovering in what the real and essential difference lies. Nay, has he not added somewhat to the difficulty by the very pathological views as to the nature and proximate cause of gout, which he so continually brings before the eye of the reader? We allude, as a matter of course, to the doctrine that it is a disease "based upon plethora, and consists essentially in a redundance of nitrogenised products in the system." Does not this description apply with much greater accuracy to Rheumatism than to Gout? It is a fact beyond all question that the former malady is especially apt to occur in plethoric constitutions, and that, in it, the blood is very generally charged with an excess of its fibrinous constituents. Holding the views which our author does, we have been not a little surprised to find that he repudiates the idea of gouty and rheumatic disease being almost ever combined in the same case. "As to the disease called rheumatic gout, the name is often used as an excuse for uncertain diagnosis, and applied sometimes to gout, and sometimes to rheumatism; the mixing-up of the two diseases in the same case being, in truth, of very rare occurrence;" and, in the Preface to his work, he goes so far as to say: "I trust that the time will come when the so-called disease, *rheumatic gout*, will be as seldom heard of, as I believe it is of rare occurrence." We are utterly opposed

to the admission of Dr. Robertson's opinion upon this very important point—important, because, according to the views that are held, so will be the medical practice that is pursued in a multitude of cases. That gouty maladies are often engrafted upon, or associated with, a rheumatic constitution cannot surely be disputed by any one; we should say that they are very generally so in patients who are young, plethoric, and indulge much in the use of fermented liquors; simple uncomplicated gout being comparatively rare in such persons. But it is quite unnecessary to enlarge upon this subject, unless we have previously determined what Gout and Rheumatism really and truly are. Dr. Robertson does not say a single word as respects the proximate cause of the latter disease; and as to that of the former, we have already seen how very questionable some of his opinions are. We cannot, as a matter of course, enter at large upon this question. Suffice it to say that, after the most mature consideration of the subject,—based not only upon what has been written by the most experienced authors, but also upon the results of minute observation in practice—we have long since come to the conclusion that genuine uncomplicated rheumatism, whether it be of the acute or chronic form, is always connected with an excess or redundancy of the fibrinous constituent of the blood. Many circumstances seem to favour this idea. The disease very generally occurs in persons of a plethoric habit of body, and who are liable to inflammatory disorders, either from a congenital predisposition, or from an excessive consumption of strong and nutricious food. The state of the blood too, when drawn, very generally shows that there is a redundancy of fibrine; and when any serous surface becomes the seat of the rheumatic inflammation, it is well known that there is almost invariably an effusion of coagulable lymph. Moreover, what is the medicine which of all others appears to have the most prompt and decided effect, not only in causing the absorption of the lymph that has been already infused, but also in defibrinating (so to speak) the condition of the blood? Is it not Mercury? And is not this the very remedy on which we can best depend for the relief o many of the most serious and distressing symptoms of Rheumatism? If the system once becomes gently mercurialized, not only do the present sufferings of the patient almost immediately subside, but the existence of any internal mischief is generally counteracted and subdued.

In saying this, however, we do not wish it to be understood that the treatment of Rheumatism should be left entirely to the exhibition of mercury. Moderate venesection may be, and very often is, unquestionably useful; it controls excessive febrile action, and at the same time powerfully promotes the curative operation of other remedies. Then, again, the secretion of the kidneys is almost always very sensibly deranged; usually it is sparing in quantity, and also highly charged with its peculiar principles, which, if not duly eliminated from the system, invariably aggravate all pyrexial irritation.

Whatever may be said of the theory we advocate, we can vouch for the very general success which will attend the practice that is based upon and derived from it: viz., the use of a mild course of mercurial alteratives, and of saline, and especially alkaline, diuretics; the occasional moderate detraction of blood, either generally or locally; a light and lowly animalised diet; and a most rigid abstinence from all fermented

liquors, more especially from those which contain much glutinous and nutricious principles, such as porter and ale. We have almost daily occasion to witness the good effects of entirely prohibiting all such stimulating drinks in chronic rheumatic ailments, and we are not unfrequently surprised to find that many medical men seem to neglect so much the regulation of their patients' diet, while cramming them with physic;—the very virtues of which are often directly counteracted by the pernicious *ingesta*, that are allowed to be taken at the same time. We need scarcely say that warm clothing is another essential adjuvant in the treatment of all cases of rheumatism. Its use is the more necessary, when we administer mercury and diuretics; as the action of these remedies invariably renders the cutaneous surface more sensitive to atmospheric impressions than it was before.

If the view which we have now taken of Rheumatism be correct, it is sufficiently obvious that the morbid condition of the blood, upon which it is believed to depend, may be associated with a cotemporaneous dyscrasis of the circulating fluid of a different nature. Along with the excess of fibrine, there may be, for example, the presence of an abnormal acid matter, such as we have every reason to believe exists in genuine and uncomplicated gout. If such be the case, may we not reasonably suppose that the phenomena, to which this compound morbid state may give rise, will have a compound character, partly rheumatic and partly gouty? Such is the view that we take of what is called "rheumatic gout"—a malady, we feel assured, that is of very common occurrence, in spite of the repeated contradiction of our author.

We have not left much space to ourselves for the examination of the therapeutic portion of Dr. Robertson's work; but we must allude to some of the more salient points.

He is unfavorable to the application of leeches to a part affected with gouty inflammation: "it is hardly ever of the least service, and is, very generally, decidedly injurious to gout. If applied near the part affected, the local inflammation is usually increased, or at all events unrelieved, by them; and if applied at a distance from the local gouty inflammation, there is considerable risk, that the gout will either migrate to that neighbourhood, or make its appearance there in addition to its existing site. There is, probably, one description of cases, in which the application of leeches might be of much service, and in which it would be advisable to give them a trial. This is when gout has taken up its seat in some very undesirable position, as in the loins or hip, and when the amount of febrile and inflammatory action seems otherwise to indicate the propriety of loss of blood, and the other circumstances of the case do not contra-indicate it, and when it seems not unlikely that the application of leeches to the more common and desirable seats of gout, as to the great toe, might be attended with good effects, and lead to the migration of the disease, and determine it to the part where the leeches had been applied."

In our opinion, there is a great deal of unnecessary apprehension in the minds of many medical men about the effects of local bloodletting in gout. As a matter of course, there is no use of having recourse to it at all, unless the inflammation in the part affected be tolerably active and severe; but, whenever this is the case, the application of a few leeches in the

neighbourhood of the inflamed joint will very generally afford decided relief. The number of leeches need never be great; a gradual oozing from a few bites, kept up for several hours, is always much more beneficial than the more rapid depletion from a multitude of them. The best plan to promote the gentle bleeding is by covering the affected part with flannel wrung out of hot poppy-head fomentation, placing over this a piece of oil-skin. The part should never be exposed to the air. On the following day or so, the use of a weak spirit lotion, *applied tepid*, will generally be both pleasant and beneficial. One part of spirit to three of camphor mixture is the application so much recommended by Sir C. Scudamore. The addition of a little vinegar will often be found very grateful.

Colchicum is declared by Dr. Robertson to be "decidedly an evacuant, and as decidedly a narcotic." Although most writers have alleged that this plant possesses distinct *narcotic* properties, we are by no means satisfied of the correctness of the assertion. That its use will often quiet pain, more especially that of Gout and Rheumatism, and that it is, therefore, really and truly a *sedative*, no one can deny; but that it ever produces any decided narcotism, or stupor, we very much doubt. Its operation is in many respects very similar to that of antimony; both acting upon the stomach and bowels, the skin, the nervous and muscular systems, and more particularly upon the heart and blood-vessels, in very nearly the same way. That its "virtues as a gout-medicine are unquestionably owing to its specific effect upon the fibrous tissues," is a very vague and undemonstrable assertion. As to the conjecture of our author that it probably contains "three differently acting principles, one being evacuant, a second narcotic and a third sedative," we deem it most improbable. The *primary* effects of the medicine seem to be exerted upon the mucous surface of the stomach and bowels, stimulating their secretions, and powerfully affecting their nerves, (in a manner, there is reason to believe, similar to that of Veratria upon the skin;) its *secondary*, are directed immediately upon the kidneys, exciting them to a more active elimination of lithic acid, and probably too of other nitrogenised elements, from the system. The action of the remedy is therefore twofold; first on those organs engaged in what Dr. Prout has called the process of *primary assimilation* and afterwards on some engaged in the process of *secondary assimilation*. According to this view, Colchicum ought to be very useful in many other maladies besides Gout and Rheumatism; and so it unquestionably is. We have found it often produce excellent effects in various cerebral and hepatic disorders, more especially when these occur in full and plethoric habits. In the early stage of acute Hydrocephalus, it may be given with great advantage; and, in short, in almost every disease in which we wish to make a strong impression on the intestinal canal and on the kidneys. As a general remark, it may be well to state that, whenever we have reason to suspect that the bowels are loaded or the intestinal secretions much depraved, the use of colchicum should always be preceded by some active purgatives in combination with a mercurial. This is just what might have been anticipated, considering the *modus operandi* of the drug. By its peculiar influence on the intestinal surface, it acts as a powerful derivative of the distal irritation that is present in the hands or feet; and if this vulsion take place before the bowels have been cleared of their offe

contents, the morbid action may fasten itself upon some vital organ, and give rise to the most alarming symptoms. Whoever has tried upon his skin the effects of Veratria (and the *veratrum* belongs to the same natural family as the *colchicum*,) will remember the peculiar effects which it has upon the cutaneous nerves; and the continued tingling irritation, which it produces, has, it is well known, often relieved the most painful neuralgia —although there has been no narcotic nor directly sedative operation experienced, as when the active principle of Aconite, and such like plants, has been used. Now, is it not possible that Colchicum may act in a somewhat similar manner upon the nerves of the alimentary canal? and, if it does, can we be surprised at the pernicious effects which it may occasion, while the *materies* morbi is yet uneliminated from the system.

The too common practice of calling Colchicum a specific for gout has given rise to the most unscientific, and, unfortunately too, the most pernicious errors. Its use may relieve pain, and it may powerfully assist in promoting the expulsion from the body of the peccant matter that is invariably present to a greater or less extent: but it will never by itself serve to prevent the new formation of this matter, nor can it even cure some of the worst sufferings to which gouty patients are liable. We cannot therefore go so far as Dr. Robertson, and admit with him that "so much power has this wonderful drug on gouty action, that it enables us, in a very great degree, to prevent, relieve, or modify its manifestation."

Fortunately, the use of this potent remedy is not necessary in a vast number of cases of Chronic Gout. The exhibition continued for some time, of mild alkalis, and the regulation of the diet, so as to prevent as much as possible the formation of acid during the process of digestion, with due attention to the state of the alvine excretions, will do more for the effectual and permanent relief of our patient, than the use of Colchicum, or of any boasted specific in the world.

With respect to the employment of Colchicum in Rheumatism, the following passage will sufficiently explain our author's sentiments:—

"The degree to which colchicum may and must be given in rheumatism, especially articular rheumatism, and more especially when the fibrous tissues of the heart are involved in the inflammatory action; the promptness with which it should follow the preliminary doses of calomel and purgatives; the steadiness and freedom with which it should be exhibited; the length of time during which it should be continued, in lessening doses, until the heart affection and the state of the joints, evidently render it no longer needful; and that colchicum should be made the sheet-anchor in these cases, and not calomel and the lancet,—these being auxiliary, and only auxiliary, to the specific means of relieving fibrous inflammation; these are truths that will, every year, be known and felt more and more." P. 256.

Few medical men, we should think, will agree with Dr. R. in his estimate of the comparative value of Colchicum and Mercury, along with blood-letting, in rheumatic Carditis.

We must not omit to give our author's opinion of Iodine in the treatment of Gout.

"The external or internal use of iodine in the different forms of gout, during the absence of acute or active inflammation, is a question of rising interest. That it does not debilitate the system, or at least, when carefully given, does not de-

bilitate it to the degree that was at one time feared or conceived, is now generally admitted. On the contrary, many persons evidently become strong, and rapidly gain flesh and power under its use. That it has great alterative powers, is now admitted on all hands; that it acts almost specifically on the glandular system, and the emulging organs generally, might lead to an inference, as to its possible usefulness in gout; and there can be little question, that, in many chronic, and no small proportion of irregular, gout cases,—and in many cases of confirmed gout, when carefully used between the paroxysms, its effect is most useful: the more so, of course, other things being equal, the more cachectic the general habit, or the more that a scrofulous condition seems to be mixed up with gout. In these, and indeed in all cases, too much cannot be said about exhibiting iodine in mild enough form, and small enough doses; preferring the iodide of potassium until it is found, on trial, to be insufficient." 310.

The following passage struck us as deserving of notice, rather from the singularity than the soundness of the opinion therein expressed:—

"It is believed (by whom?—*Rev.*) that a new era of gout-treatment will mainly consist, in the greater trust in mercurials, and diaphoretics, for the relief of the inflammatory condition,—the much diminished use of colchicum,—and the greater and greater use of alterative means, and, perhaps, chiefly of iodine, to correct the habit of system on which gout mainly depends, or by which it is always much aggravated in its degree, and lowered in its character, and seriously exacerbated in its consequences." P. 310.

From the remark in the closing part of this sentence, it would seem (as indeed we have reason to suspect from a previous part of his work) that Dr. R. regards the gouty cachexia to be of a strumous or semi-strumous character—an opinion that is not likely to be generally entertained.

A much more useful remedy than *iodine* as an alterative or corrigent of the gouty diathesis, in aged and infirm persons, is *steel*. The milder preparations of this metal—and none is better than the susqui-oxide, as Dr. R. very judiciously remarks—will, in very numerous cases of Irregular Gout, be found of the greatest service; after the alvine secretions have been attended to, and the urine has been brought back to a healthy condition by the use of alkaline medicines. A course of gentle chalybeates will then serve, better than any other tonics, to invigorate the digestive organs, to counteract the tendency to mal-assimilation of the food, and to give tone to the general capillary system. We have repeatedly witnessed admirable effects from such a course of treatment.

Arsenic also has been administered in such cases with decided benefit; especially, as our author observes, when the disease exhibits more than usual of the paroxysmal character. Change of air, and the occasional use of some of the native mineral waters, will generally much promote the efficacy of the remedies employed.

The great diminution, in point of frequency, of Gout during the last 30 years in this country, is obviously attributable to the much greater temperance in the use of vinous liquors that has prevailed since the close of the last war. Men now-a-days eat quite as much as ever they did, and are, we verily believe, quite as plethoric as they used to be; but they certainly do not ingurgitate so much Port wine—the true "fons et origo" of a vast deal of gouty disease Persons, who have a tendency to the malady, and who yet have not the control over their appetites to resist the use of vinous and malt liquors, should be instructed to take a scruple

of carbonate of soda or a little calcined magnesia about two hours after their dinner; this will serve to neutralise the acidity that is developed during the process of digestion. Sir H. Halford was much in the habit of prescribing a rhubarb and soda pill, forenoon and evening, to his gouty patients: the practice is a very good one. The stomachic remedy well known as Gregory's powder—consisting of rhubarb, magnesia, and ginger—is also very serviceable, if taken an hour or two after meals. It should ever be remembered, that the foundation of all rational treatment of the gouty diathesis must be the correction of the disordered assimilative functions, and the neutralization of the peccant acid matter already introduced into the system;—the intestinal and renal excretions having been first brought into a healthy state. The fountain-head of the evil is in the chylopoietic viscera; if the spring be troubled, how shall the streams be pure? To ascertain this cardinal point, the condition of the alvine and urinary evacuations must be known; such knowledge is as necessary for the judicious treatment of Gout, as that furnished by the auscultatory exploration of the chest is for the treatment of Dyspnœa or acute Rheumatism. Unless the physician makes himself, every now and then, acquainted with the chemical properties of the urine, his practice *must* be empirical, and *may* be often most injurious.

But, besides the secretional disorders alluded to, there may be superadded other morbid conditions of the system in cases of gouty disease; and to these also, as a matter of course, proper attention must be paid. There may, for example, be a plethora of the vessels, and the blood may be, at the same time, unduly rich and fibrinous; or there may be a highly excitable condition of the nervous system, and a consequent proclivity to the development of various spasmodic and neuralgic symptoms. Again, the hereditary constitution of the patient should be studied; the maladies from which he has previously suffered; the mode of life he has followed; the season of the year; the medical constitution of the atmosphere, and so forth. When we think of all these things, is it not obvious that the same line of Treatment cannot possibly be appropriate in every one of those various, and often too very different, maladies that have been so unnaturally forced together and congregated under one general appellation? At all events, let not the practice that is followed be regulated by a mere name, and directed against a shifting phantom; but let all the existing phenomena in each individual case be diligently and minutely investigated for themselves. Then will the medical treatment be alike more rational and successful; we shall no more hear of *specifics* for Gout.

From the preceding pages, the reader will doubtless be enabled to judge for himself of the general character of Dr. Robertson's work. We have freely expressed our own opinion, and have canvassed its merits without partiality or prejudice. The therapeutic directions for the treatment and prevention of Gout are, on the whole, excellent, and may therefore be read with advantage by every one.

I. TRAITÉ DES ANGUSTIES OU RÉTRÉCISSEMENTS, LEUR TRAITEMENT RATIONNEL. Par le Dr. *Leroy D'Etiolles.* 8vo. pp. 488. Paris, 1845.

A Treatise on the Rational Treatment of Stricture of the Urethra.

II. CLINIQUE MEDICO-CHIRURGICALE DU PROFESSEUR LALLEMAND. Publiée par *Hermann Kaula.* 1ère Partie. 8vo. pp. 340. Paris, 1845.

The Medico-Chirurgical Clinical Practice of Professor Lallemand. 1st Part, containing Venereal Affections, Stricture, and Diseases of the Prostate.

ALTHOUGH the numerous books relating to Stricture which have been published of late years might seem to have exhausted the subject, the above-named volumes, from the pens of two distinguished French surgeons, contain numerous useful, and some original, observations respecting it. Dr. Leroy's work is indeed a complete treatise upon the nature, consequences and treatment of the disease, and the varieties of means to be adopted are set forth in a masterly and discriminatory manner. M. Lallemand's "Clinique" consists chiefly of cases illustrative of certain points of practice, accompanied by observations, collected from his oral discourses and former published works, by M. Kaula, one of his private pupils. Much of it, therefore, is a republication, in a more connected form, of what has hitherto appeared at different epochs: and although we have not always the *ipsissima verba* of the Professor, the publication has his full sanction, and its appearance, as the first part of a complete collection of M. Lallemand's observations, is the more interesting just now, inasmuch as his professional career may be considered as closed, by his retirement from his professorship and extensive practice at Montpellier. Ill-health and inability to cope with the fatigues of so active a mode of life are assigned as causes for his taking this step: but the witty Jean Raimond cautions his Parisian brethren, among whom M. Lallemand has located himself, that, when he has become possessed of the various professional honours which so justly await him, they may find in him another Sextus Quintus.

It is, however, to M. Leroy's work our chief attention will be directed. He commences it with a few

Anatomical Considerations.

It is very important to know the ordinary *Length of the Urethra*, but, concerning this, different surgeons have delivered very different statements. Thus, Boyer says it varies from 11 to 12 inches, while Malgaigne considers 6 inches as the maximum. This latter observer has, however, only measured the canal after death, when the tissues become so contracted, that a female catheter will usually reach the bladder. MM. Velpeau and Civiale, from admeasurements of the living urethra, state 5½ to 6½ inches as its

length, although the plates in the work of the latter make it appear much longer. Dr. Leroy agrees with Whateley that the urethra is generally 8 inches, or 22 centimetres* in length, he having found it so in several hundred cases. He has rarely found it so short as 7 inches, but repeatedly as long as 10 or 11 inches. Its length may be much extended by an enlarged prostate in the aged, and by deposition of fatty matter in the tissues surrounding the rectum and neck of the bladder at an earlier period of life. M. Lallemand states that the length of the urethra may vary from 203 to 243 millimetres, and in one patient he observed it even 257 m. The *curvature* of the urethra is also sometimes enormously increased, so that we must not always implicitly rely upon the statements of the anatomist. Although the elevation of the urethra as it enters the neck of the bladder does not in some cases exceed 8 *mill.*, yet where the prostate is enlarged, or the patient obese, catheters may require to have a curve of even 9 or 10 *centim.* As there is a difference in the entire length of the urethra, so is there in that of its various parts, but in a general way these may be thus measured: the spongy portion 5½ to 6 inches, the membranous 1 inch, and the prostatic portion 12 to 15 lines. M. Lallemand states that the extremes of the length of the urethra from the meatus to the subpubic curve are 150 and 185 millimetres. The length of the penis and development of the prostatic portion will produce great differences, and thus, in a preparation in the Dupuytren Museum, the prostatic portion is observed to be three inches long, and the spongy portion only 4 inches. The *diameter* of the urethra in various parts of its course has been also variously stated. The differences, for the most part, disappear when the canal is cut open, so that it is necessary to examine it by injecting wax or plaster, and observing the cast so formed, although, owing to the easy distensibility of the tissues, this forms rather a measure of the elasticity of the canal than of its actual size. Examining it, however, in this way, MM. Leroy and Piégu give results very similar to those published by Sir E. Home. The narrowest and least dilatable portions are the external meatus, the commencement of the membranous portion, and a point corresponding to the anterior third of the spongy portion. However, it is to be observed, that, sometimes, the contraction of the meatus occurs only at the orifice, the canal then suddenly dilating; sometimes, there is a second narrowing from 7 to 11 lines lower down, the *fossa navicularis* occupying the space between these; again, the contraction may be continuous for 4 or 5 lines, when there is no fossa; and lastly, the orifice may be funnel-shaped, the narrowest point being found at 3 or 4 lines depth. The vesical orifice of the urethra is in like manner narrowed by the projection of the prostate; but in old cases of stricture this aperture often becomes dilated. The *natural dilatability* of the neck of the bladder is very great in the child, and the ease with which calculi or their fragments become engaged within it, produces the chief obstacle to the performance of litho-

* The *Centimetre* is equivalent to rather more than 4 lines—a third of an inch; and the *Millimetre* to ⅔ of a line. M. Leroy does not always attribute the same value to the millimetre, for while in some places he states 27 millimetres form an inch, in most others he considers a millimetre as equivalent to half a line, when 24 only would be required to form an inch.

trity in the young. When the prostate is hypertrophied, this dilatability is less, but even then it will admit a body 6 lines in diameter. In two points the urethra is *dilated* compared to the rest of its course at the bulb, and the centre of the prostate. The bulb is enlarged, especially at the lower wall of the canal; and, as immediately afterwards the urethra becomes narrower and curved, here is the usual site of false passages. The narrow membranous portion resists sudden, but not gradual, dilatation. We will extract some useful remarks on catheterism in reference to this point.

"Surgical works treating of the anatomy of the urethra, rarely fail to state that all the obstacles to catheterism exist at the inferior wall of the urethra, where are united the dilatation of the bulb preceding the sudden contraction of the membranous portion, the projection of the verumontanum, the prostatic dilatation, and the projection of the neck; and the precept, now become trite, is delivered, that the point of the instrument should always follow the upper wall of the canal. * * * * * * * * The utility of observing this direction at the point of junction between the bulbous and membranous portions of the urethra cannot be doubted; for there is a difference of height of from 4 to 6 millimetres between the one and the other. If the point of the catheter were rested against the bottom of the depression, and force employed to overcome the resistance thus offered, a perforation would be inevitable, and the instrument would pass beneath the membranous portion. Its point must, therefore, be sufficiently raised to avoid the cavity of the bulb; but if, with this object, the upper wall of the urethra is pressed against too firmly, it often happens that the catheter strikes against the sub-pubic, ligament, and turns round in the hand of the operator when he attempts to depress the handle. It must not be forgotten that before reaching this ligament, which surrounds it like a collar, the urethra is abandoned by the corpora cavernosa which have separated, and that it is only strengthened anteriorly by the fibrous band which is inserted into the pubis; so that, anterior to the ligament, it possesses a certain laxity which allows it to engage the instrument, and arrest the course of the point, which, after having traversed the portion of the canal surrounded by the corpora cavernosa, passes into the depression formed between them and the sub-pubic ligament. Here false passages are less to be feared than posteriorly, because resisting fibrous sheaths and the pubis arrest the progress of the instrument, but the urethra may at all events become lacerated, and in fact often is so. How many times have I, when called to pass an instrument where catheterism had been unsuccessfully tried, been obliged, in order to avoid passing it again into these lacerations, to direct the point of the instrument away from the anterior wall so as to carry it backwards towards the bulb, sliding it afterwards from below upwards, so as to enter the narrow membranous portion. How many times also, finding the anterior wall of the urethra swollen from the contusion produced by the repeated pressure of the catheter against the ligament, have I been compelled to practise the *tour de maitre*, and carry the instrument along the floor of the bulb, bringing it up afterwards behind the swollen part which impeded its entrance to the narrow portion. Thus this precept must be understood in a qualified manner, and above all should not be exaggerated; otherwise it may give rise to difficulties which would have been avoided by being less impressed with its importance."

The mucous membrane of the urethra, if the penis be not extended, may form *valvulæ* able to impede the progress of a small instrument. They are not, however, so often met with as represented by some writers who have probably confounded small bridles and cicatrices with them. They are especially found at the lower portion of the *fossa navicularis* and

at the junction of the membranous and prostatic portions of the urethra. The small *lacunæ*, termed *sinuses* of *Morgagni*, are sometimes sufficiently enlarged to impede the progress of a small catheter, and are especially found in the vicinity of the bulb—the seat of the chief difficulties of catheterism. As to the *muscularity* of the entire urethra, Dr. Leroy does not agree with those who infer this from the fact of its existence in the horse, in which animal the muscles serve to withdraw the penis within its sheath.

"The urethra has no muscular fibres proper to itself, and it is quite evident to me that the spongy portion is entirely destitute of them; but, in the membranous and prostatic regions, the mucous membrane is covered by a muscular plane—a prolongation of fibres from the bladder, which, after separating to surround the prostatic portion of the canal, cover the membranous portion, and terminate in a kind of fibrous ring, which becomes confounded with the tendinous fibres of the muscles attached to the bulb, so that it might almost be said a first neck of the bladder exists immediately behind the bulb. In fact, from this point the sensation no longer resembles that in the spongy portion; for, as soon as the end of the instrument has passed the contraction which forms the entrance of the second portion of the urethra, it arouses the desire to urine. This muscular contraction also seems to form at this orifice of the membranous portion, if not an obstacle to the exit of fluids from within, at least one to their entrance from without. Every one has observed, while injecting the urethra, that the fluid returns without passing beyond the bulb, even when a catheter has been carried as far as that; but if the eye has passed the muscular portion but a line, the liquid enters the bladder, surmounting without difficulty the resistance of the true neck of the organ. But it is not only to the entrance of fluids this musculo-membranous orifice opposes itself. Instruments, when soft and flexible, have in certain cases difficulty in passing it. We are obliged to furnish them with stilettes, and keep them against the orifice, until the slight and sustained pressure has overcome the resistance. This obstacle is not only produced by the terminal ring of fibres proceeding from the bladder, but also by the contraction of those of the bulbo-cavernosi, the transversus perinei, and the external sphincter of the anus, which, coming from opposite directions to fix their attachments to the point of origin of the membranous portion, draw it in as opposite directions. It is by all these circumstances and united conditions that is produced that obstacle to the passage of instruments to which the name of *spasm of the urethra* has been given. To explain the production of this spasm, it has been supposed that, among the fibres springing from the bladder to cover the two deep-seated regions of the urethra, some are circular; but besides that, the existence of annular fibres is imaginary; the supposition of their existence is not necessary for the explanation of the phenomenon, since it is always at the orifice of the membranous region that it is produced. There are many fibres almost annular at another point of this region, but these belong to Wilson's muscles; they are beyond the muscular plane which forms a covering to the two deep-seated regions, and spasm is not usually observed in the part embraced by them."

It must not be forgotten that the urethra varies in degree of *sensibility* in different parts of its course, otherwise a healthy may be mistaken for a diseased structure. The sensibility is acute at the meatus, the bulb, and the neck of the bladder—its degree varying exceedingly in different persons. It soon subsides, and operations can then be performed which it, at first, would seem to render impracticable. There is also great sensibility manifested at the meatus urinarius when a calculus or other cause irritates the neck of the bladder, but causes of irritation seated in other parts of

the cavity of that organ exert a similar effect, and even renal calculi have produced it. "This sympathetic pain is modified according to the nature of the irritating cause. It is felt after voiding, and resembles a painful itching when there is a calculus, but is more like a burning sensation, and precedes the jet of urine in catarrh of the bladder. Most writers have noticed this sympathetic sensation, but few have observed that there is a kind of *reciprocity* between the parts, and that emollient applications to the end of the penis and local baths calm the pain of stone in the bladder. When, in lithotrity, an instrument is employed which distends the orifice too much, contractions of the bladder occur, which impede the operation and may prevent its success."

Nature of Stricture.

Both authors treat of two different species of Stricture, the *Organic* and the *Spasmodic*. Dr. Leroy divides the former into the following varieties, without, however, meaning to affirm that they are all to be recognised during life. 1. The *Inflammatory Stricture*. Inflammation may invade a healthy urethra, or one that is already narrowed, and when it does not terminate by resolution a stricture is the result. 2. *Fungiform* strictures depend upon a chronic vascular tumefaction of the mucous membrane, and with this most strictures commence. 3. *Valvular folds* and *bridles*. 4. Strictures which are termed *fibrous* or *callous* are formed by thickening or deep cicatrices of the mucous membrane, and engorgement of the submucous tissue. From these there results an inodular substance which becomes dry, insensible, and of the pearly appearance of tendon, from which it differs in the close intercrossing of its fibres. "When a sound is passed over such strictures, one is struck with the hardness of the tissue, and with the force with which the instrument seems to adhere to it." M. Cruveilhier erroneously describes this as the only form of stricture. 5. *Turgescent Strictures* are found to exist especially in the spongy portion of the urethra, which is more easily influenced by an afflux of blood, and they give rise to several effects reputed as spasmodic. As long as the case is one of mere turgescence, relief follows the passage of a bougie, but when a chronic inflammation is developed, or breach of the mucous surface occurs, it may proceed on to the formation of a fibrous stricture, exchanging the elastic sensation it imparted to the bougie, for one of a hard, horny nature. 6. *Ulcerations* are generally but secondary, resulting from the irritation caused by the urine posteriorly to the stricture; but they may be also the primary source of mischief, causing when they cicatrise one of the most unmanageable forms of stricture. 7. Although denied by many authors, *vegetations* or *carnosities*, undoubtedly do occasionally cause obstruction in the course of the urethra, especially at the fossa navicularis; and they are not uncommonly found at the orifice of the meatus in women. 8. *Varicose Strictures*. Varices of the neck of the bladder are a frequent accompaniment of an engorged state of the prostate; but a varicose state of other parts of the canal, producing stricture, has been denied by many surgeons. The profuse bleeding following sometimes even the careful use of instruments, would seem to indicate its existence. 9. *Cartilaginous Strictures* are only found in the spongy portion and seem to proceed from a changed condition of the fibrous envelope of the corpora cavernosa.

The following are some of M. Lallemand's observations upon organic stricture:—

"By observing what takes place in strictures situated at the orifice of the meatus, it is easy to conceive the mode of formation of those which are deeper seated. Thus, we find inflammation at the extremity of the glans produce an increase of sensibility, swelling, and an afflux of blood, and leave as a consequence a circular induration, surrounding the orifice, and, sometimes, prolonged funnel-shaped into the interior of the canal. At other times, venereal ulcerations are formed at the meatus, and after cicatrization their edges are contracted, or their opposite surfaces unite. In both these cases, the obstacle to the flow of the urine is constituted by an *induration*, itself resulting from an inflammatory process—only in the latter there is a loss of substance besides. So of strictures deeper seated, the greater part consist but of an induration of tissues, previously softened by inflammation, but in some there has been more or less prior destruction of substance. * * * * * * * In all the cases we have cited, inflammation has been the evident cause of organic stricture, but the phlegmasia was not confined to the villous or secretory surface of the mucous membrane of the urethra. A discharge may continue for years without causing induration, or permanent obstacle, because the products of the inflammation are discharged at the surface; while, on the other hand, inflammation of the sub-mucous tissues may cause induration without occasioning any notable increase of secretion. Thus, when a stricture follows an urethritis, it is not to be attributed to the catarrhal affection, but to the deeper inflammation which it has excited. Blenorrhagia is but an inflammation of the follicles of the urethra and prostate; by proper means, duly employed, we can soon effect its resolution. But if the inflammation has passed the mucous membrane its consequences are got rid of slowly and with difficulty; for then the materials, detained in the meshes of the inflamed tissues, are subjected, by the absorption of their more aqueous parts, to different changes. New tissues are always more dense than those at whose expense they have been produced, and the canal becomes diminished in its capacity.

"There then takes place in the substance of the urethra the same that occurs in all parts of the seats of inflammation. The inflamed tissues at first lose their consistence, and are softened; but, after a time, the morbid process produces new materials, which are completely removed by absorption, when resolution takes place, but which, when this is slow or incomplete, are only deprived by the absorbents of their more fluid portions. These new elements, generally of a gelatino-albuminous nature, remain in the tissues forming diffused indurations, adhesions, more or less hard kernels, tumours, &c.,—transformations constituted by a combination of the matters which have resisted absorption with the normal tissues, the whole after a while sometimes acquiring a fibro-cartilaginous consistence. * * * * * The strictures are circular, if the inflammation has invaded all the circumference of the urethra, and they form portions of a circle of different size and thickness, or present a longitudinal form, according to the seat, the extent, and the intensity of the prior phlogosis. When the inflammation is seated externally to the mucous membrane, it leaves more or less projecting tumours, which may sometimes be felt just under the skin, and narrow the canal by a direct compression."

Spasmodic Stricture.—Dr. Leroy believes that, under this term, authors have included different conditions, as an irritable state of the canal, the temporary turgescence of an organic stricture, the contraction of the muscles surrounding the membranous portion of the urethra, &c. Sir E. Home, believing the urethra possessed of a muscular coat, attributes this form of stricture to its partial contraction, and Brodie believes it to arise from the

action of Wilson's muscles. The obstacle, however, occurs anteriorly to their attachments, and *spasm of the urethra*, as it should be called, rather than spasmodic stricture, is produced by the joint action of the bulbo-cavernosi and other accessory muscles of the urethra, and of the species of muscular ring formed at the commencement of the membranous portion of the urethra by the muscular plane which proceeds from the bladder. In confirmation of the efficiency of this last, the author observes that he has almost always observed spasm of the urethra at the commencement of hypertrophy of, and in irritation of, the prostate gland, which induce contraction of this muscular part. The obstacle to the passage of instruments thus produced, requires gentle pressure made by not too small an instrument. A gum-catheter, containing an iron stilette, is to be placed in contact with the muscular orifice until this opens, and when the point of the instrument has entered even but four or five millimetres, the stilette may be withdrawn, as the catheter then passes easily enough. Sometimes the obstacle is so great, that the attempt to pass the instrument must be postponed. Fortunately, this muscular constriction does not produce retention of urine, and in most cases we can wait until it subsides. When retention, caused by affection of the neck of the bladder itself, exists, this first obstacle must then at once be overcome, although even then the urine will not flow until the catheter has actually passed the neck of the bladder —the true seat of retention, complicated in the case now supposed by spasm of the urethra. This spasm may also be combined with organic stricture, as shown by the grasping of the bougie by this muscular orifice. It is sometimes present in stone of the bladder, disappearing after the removal of the calculus. It also is occasionally produced by rheumatism, but much oftener by an engorged prostate. Compression of bougies by the urethra is no proof of spasmodic stricture, since it may be produced by mere vascular distension of the canal, induced by the irritation of the instrument.

"There is, then, really no such a thing as a spasmodic stricture, or at least this term cannot be properly bestowed upon any of the obstacles to which it has been applied; for in one case there is muscular contraction, or spasm, but no stricture, or obstacle to micturition in the spot where the catheter meets with resistance; and in the other case, where there is really stricture, the sudden variations in the diameter of the contraction proceed from some sudden inflammation or temporary turgescence, or a muscular constriction, which would be of no avail in the production of retention, if an organic change of structure did not already exist."

M. Lallemand, however, and we think with entire reason, acknowledges the occasional existence of spasmodic stricture properly so called. He has observed several cases, in which the impressions given to the wax bougie, passed to examine the state of the urethra, have exactly resembled those produced by organic stricture; and he has frequently only become alive to the true nature of the obstacle, by observing it at different examinations to occupy different portions of the canal, being capable indeed of being produced extemporaneously in any part of it. In other cases, voluminous instruments pass with greater facility than smaller ones. Such spasmodic contractions are intermittent, but, during their existence, forcible attempts to overcome them irritate the urethra, and add to their constrictive power.

"What leaves no doubt as to the spasmodic nature of these strictures is the difficulty there sometimes exists in withdrawing an instrument after it has penetrated the urethra. It is so closely grasped that the penis is raised by every attempt to remove it; and sometimes it is necessary to leave it a half or a whole hour before it can be extracted without causing new contractions.

"There exists, then, temporary constrictions of the canal simulating permanent organic strictures, although the urethra may be the seat of no induration or cicatrix, and such coarctations can only result from spasm. Dysury and retention arising from them must not be confounded with these states produced frequently by an inflamed prostate. In spasm, retention is sudden, changeable, and the urine is passed in a full stream during the intervals. In inflamed prostate, the dysuria increases gradually to complete retention, persists long without intermission, and, when it yields to antiphlogistics, never does so suddenly. Besides, the patients feel an unsupportable heaviness about the perineum and rectum, and frequent desires to go to stool. The prostate, examined by the rectum, is found large and painful, and a large catheter passes without obstacle into the bladder."

Causes of Stricture.

Whatever causes inflammation in the urethra may produce stricture. *Gonorrhœa* is a more frequent cause than any other, but for its operation some original disposition seems necessary, or the affection would be infinitely more common. A first gonorrhœa frequently only increases the susceptibility of the urethra, the stricture rapidly following a second attack of the disease. Dr. Leroy does not believe the disease is produced in consequence of the use of *injections*, and he has notes of 107 cases in which it came on without any injection having ever been used; and where these have been employed, how seldom have they ever reached the membranous portion of the urethra, where nine-tenths of the strictures are located. Injections should rather seem a preventive by removing the obstinate discharges which tend to end in ulceration. Dr. L. does not however mean to state that injections are always innocent, and has known a great number of cases in which stricture has followed their employment at the commencement of the disease, or when used too strong. He regards the *nitrate of silver* as especially giving rise to stricture, as well as to phlegmasia of the prostate and cervix vesicæ. M. Lallemand also regards gonorrhœa as the most frequent cause of stricture; but, in a few instances, has known it to follow masturbation, or venereal excesses, even unpreceded by any running.

Next to gonorrhœa, external or internal violence inflicted on the urethra is the most frequent cause of stricture, such as contusions or lacerations of the perineum, (M. Lallemand states that strictures are found more frequently in the English than the French, in consequence of the passion for horse-exercise prevailing among the former,) violent or injudicious catheterism, &c. It not unfrequently results in the lower orders of France from their inflicting a violent blow upon the urethra, in order to what they term *break the cord* in the chordee of gonorrhœa. Dr. Leroy says he has met with but about fifteen cases, in which the stricture was unpreceded by sexual intercourse, discharge, violence or other cause of inflammation. He truly adds, that few are the patients whose statements on this head can be relied upon, "for there are many who have had dis-

charges and obstinately deny it, adding, at the same time, they have no motives for concealing the truth."

Persons who in childhood suffered obstinately from enuresis, or in youth urined with difficulty or too frequently, especially those of a lymphatic or scrofulous constitution, seem much predisposed to stricture; and, in them, it often takes on some unusual form, as a fungiform or hæmorrhagic, state of the neck of the bladder, spasm of the urethra, &c.

Seat of Stricture.

Dr. Leroy observes that, as authors vary so much in their statements of the natural length of the urethra, so they do as to the precise distance of the strictured part—according to his own observations on the living subject—

"1. Nineteen-twentieths of strictures exist at a depth varying from 5 to 6 inches, (M. Lallemand states it at from 16 to 20 centimetres,) *i. e.*, immediately behind the bulb, at the commencement of the membranous portion, beneath the pubis, where the urethra is naturally narrower. 2. Next in frequency are strictures of the posterior lip of the *fossa navicularis*. 3. Those of the meatus. 4. Strictures of the spongy portion, situated 2 or 2½ inches from the meatus, at the root of the penis, at the point where the canal is naturally somewhat narrow, and where, in a state of flaccidity, the penis is bent upon itself. 5. Various authors have met with stricture of the prostatic portion, and Lallemand has found it extending to the neck of the bladder."

Strictures are frequently multiple, and M. Leroy believes that, in nearly one-half the cases, there is a second 7 or 8 millimeters from the first. He has met with eleven and Lallemand with seven in the same urethra. When two strictures are seated at a considerable distance from each other, the intermediate space is often dilated; but, when they are very near to each other, their bases meet, and this portion of the canal is then smaller than in the natural state.

Number.

"When there is but one stricture, providing it is not too near the neck of the bladder, the urine is projected to a certain distance, although the stream may be very small, bifurcated or twisted. When there are several, the urine falls perpendicularly between the patient's feet, and when the number is great, or the narrowness extreme, the desire of emitting increases in frequency, because the bladder is only incompletely emptied. Its contractions cease, before it has entirely expelled its contents, and when this condition persists, the reservoir becoming more and more full, the emissions succeed each other so frequently as to constitute a species of incontinence of urine.

"When there are several strictures, one of these, generally the oldest, is always narrower than the others. If there are others between this and the bladder, they are larger than those placed between it and the meatus, because the urine, habitually retained by the chief obstacle, acts upon and distends such as are situated posteriorly; or they are indurations which only occupy part of the circumference of the urethra, and do not prevent the distension of this portion of the canal. The anterior portion uninfluenced by the jet has the greater tendency to become narrower. In general, the difficulty of treatment is proportionate to the number of strictures, not only because catheterism is more difficult, but because nothing has been done for the patient while but one existed."—*Lallemand*, p. 131.

Length.

Although, in the majority of instances, strictures are very short, yet most authors speak of having occasionally met them from one to two inches long, and Dr. Leroy gives the figure of one which extended from within an inch of the meatus to the bulb, *i. e.*, nearly five inches. It is especially in the spongy portion such long strictures are met with, but examples are adduced of the whole, or nearly the whole, of the membranous portion being contracted. Several reputed long strictures however are really numerous small ones, situated very near to each other, and the ordinary means of exploration has often led to the belief of the stricture being longer than it really is.

"There are some of such slight extent that they resemble a kind of diaphragm, and are passed as soon as the instrument enters their orifice; others, again, are 25 millimetres, and more, in length. The opening of the first is usually irregular or unilateral, and the catheter arrives at the opposite extremity as soon as it has entered the stricture. The orifice of long strictures is usually regular and funnel-shaped, because the inflammation has occupied the whole circumference of the canal. The bougie enters easily, but meets with resistance and friction over a great extent, as its extremity may easily hitch against some points of the surface in consequence of the irregularity of this, or the axis of the obstacle not being exactly followed. This stricture then is easily entered, but quitted with more difficulty. It will be readily understood that there is every intermediate size between the diaphragmatic and the long stricture. All other circumstances being alike, the disease is difficult of cure in proportion to its extent."—*Lallemand*, p. 128.

Sensibility.

M. Lallemand observes that this becomes diminished in proportion to the age of the stricture, and that, when an excessive sensibility is manifested, it does not proceed from the indurated portion, but from the irritated or inflamed condition of the neighbouring parts produced by the incessant attempts to urine. Sometimes, however, the mucous membrane lining the obstacle becomes excoriated or even ulcerated, and then excessive pain is felt in attempting to pass an instrument, and it is to such cases authors refer when they speak of the sensibility of strictures, and the immediate effects of cauterization.

Effects.

Although the portion or the urethra *anterior* to the stricture retains for a longer or shorter period its normal calibre, yet, after some years, or under the influence of certain causes, it becomes narrowed. M. Leroy believes this to be produced by a chronic state of inflammation, induced in a great measure by the irritating properties of the altered urine. It is rare for this narrowing to be uniform, it commonly presenting itself in the form of a succession of little indurated points. If caustic be applied to the urethra under these circumstances, these prominences disappear, because this substance, by its irritation, produces tumefaction of the intermediate portions, so that the entire canal becomes equably narrowed.

Sometimes, however, the urethra is found *dilated* immediately anterior to the stricture. This is especially the case when patients have been in the habit of passing instruments themselves, without reaching the bladder.

By this means the natural excavation of the bulb is enlarged, and this part is not unfrequently perforated. In some persons this anterior dilatation results from an anormal laxity of the spongy portion, often induced by the traction of the urethra by the patient during dysuria. Many persons produce this dilatation also by another practice, viz., that of endeavouring to augment the size of the small jet of urine by occasionally interrupting its course by compression opposite the fossa navicularis, ignorantly believing that, in this way, they were dilating the stricture. Sometimes the relaxation of tissues so produced is not uniform, and a kind of cells are produced in the urethra.

Posteriorly to the stricture the canal is dilated, and various changes occur in the prostatic portion of the urethra.

"In almost all subjects affected with considerable stricture upon whom autopsies have been performed, this is found injected, thickened and fungiform. It is in this sense only we understand what are called fungosities or carnosities of the urethra. The follicles of the prostate sometimes become elongated to fifteen millimetres, and admit a probe as large as a crow-quill—the prostate itself being changed in appearance and increased in size. * * * In proportion as the prostate is irritated the functions of the rectum become interfered with, a feeling of weight at the anus, and illusory desire for stool being perceived. The urine becomes ropy and viscous, and leaves a deposit of long, glairy, elastic filaments, resembling a trembling jelly, adhering firmly to the utensil, and becoming much elongated before they are detached from it. This glairy deposit arises from the increased secretion of the prostate. * * * * * Sometimes even the prostate becomes destroyed by suppuration; it can no longer be felt from the rectum, or only so in part, the remainder being soft and flattened, and false routes are then easily made, especially by the small instruments the narrowness of the stricture may require.

"It may be easily imagined that this irritation of the mucous membrane is propagated to the ejaculatory canals, the vesiculæ seminales, &c, and the frequent occurrence of swelling of the testis as a consequence of stricture proves this to be the case. It results from this state of irritation of the reservoirs of the semen and its excretory canals, that coition is promptly followed by emission, the patients are often subjected to nocturnal pollutions, and in the one and other case the pleasurable sensation is often accompanied by one of a painful character. Later, when the irritation is increased, emission takes place in a state of semi-erection, and without any sensation indicative to the patient of the frequency of its occurrence during the expulsion of the urine and fæces. Then the appetite becomes lost, and the digestion difficult; the patient gets thinner and weaker, and falls into a state of apathy or hypochondriasis."—*Lallemand.*

M. Leroy observes that it requires generally several years to have passed before such disorder of the generative functions is produced. Contrary to what would seem from the turgescence *à priori* to be the case, the emission of urine is usually more easy after coition.

The muscular coats of the bladder become much augmented in size, the mucous membrane projecting as herniæ between the bundles of fibres. The urine, by reason of the absorption of its watery parts, becomes a source of irritation to the organ, and gives rise to the secretion of abundant mucosities, which, by their decomposition, give the fluid a fetid smell. M. Lallemand observes that the deposit from these is always, whatever its appearance, mobile, and thus to be distinguished from the glairy ad-

hesive secretions of the prostate. In the course of time the ureters and pelves of the kidneys become dilated, and in one case M. Lallemand found the former so large as to be at first mistaken for portions of the small intestine. The kidneys become enlarged, soft, pale, and spongy, and at last inflamed, abscesses forming in their substance in various numbers, and at different epochs.

"It is almost always from the kidneys that the pus found in urine has proceeded, as M. Lallemand has often had occasion to show his pupils at the autopsies. It is seldom furnished by abscess of the prostate, and it is doubtful whether the surface of the bladder ever secretes true pus. The attentive examination of the urine in stricture is far too much neglected. In general, when it is only turbid, without deposit or cloud, there is only irritation of the mucous surfaces. If there is a flocculent cloud which does not reach the bottom, we must suspect diurnal pollutions. If there is a thick, mucous, or puriform moveable sediment, a catarrhal inflammation of the bladder exists: while, if the deposit is glairy, elastic and adhesive, it proceeds from the inflamed follicles of the prostate. If the deposit is purulent, and the prostate small, flat, and of difficult recognition, this has been destroyed by suppuration; but when the prostate is healthy it is most probable the pus proceeds from the kidneys."

We need not follow M. Leroy in his description of the rational symptoms of stricture, but at once proceed to his observations upon its

Exploration.

After describing the bougies contrived by Arnott and Ducamp for exploring the urethra, and showing their insufficiency in bad cases, and their uncertainty in others, M. Leroy states he finds a modification of Charles Bell's urethral probe forms the most effectual instrument. This consists in a flexible bougie terminated by a small round or olivary ball, and varying in size according to the degree of stricture. This little ball facilitates the passage of a small instrument over the folds of the urethra, and lessens the probability of its detention at the commencement of the membranous portion. The instrument is passed to the neck of the bladder and then gently withdrawn without exerting traction upon the penis; the number and length of the obstacles which oppose its withdrawal are noted upon a scale marked upon the shaft of the bougie. Although M. L. believes the wax bougie alone is a most uncertain and imperfect exploratory instrument, he uses it as a means of verifying the results already arrived at by means of the other, and it is indispensable when the existence of vegetations, fungosities, or gravel in the urethra is suspected. So, too, the impressions produced by Ducamp's instrument, are of great use in indicating the form, size, &c., of commencing false passage. When the stricture is excessively small, its exact size and nature cannot be explored until, by the use of the smallest gum-bougies, we have produced a sufficient degree of enlargement to allow the ball to pass.

"In spite of the blind confidence of those who admit of no impassable obstacles, and who state that, wherever the urine passes, catheters or bougies ought to find a passage, it is no less true that there are strictures which admit no instrument, whatever may be its tenuity, and yet allow the urine to filter through. This is probably less owing to their closeness than to their form. This kind of obstacle is sometimes produced by projections or thickenings existing alternately on the two sides of the canal, so that it acquires a zigzag direction; and that this

is the case is shown by the fact, that frequently, by twisting the point of a very fine bougie into an irregularly spiral form, it adapts itself to the sinuosities of the canal, and passes without difficulty."

M. Lallemand employs an instrument in nowise superior in its advantages to a wax bougie, and far more dangerous, inasmuch as the composition is sometimes detached from the catheter, and left in the obstacle, producing retention of urine. He takes a large gum-catheter, and having cut it across above the eye, scrapes some of the composition from near its extremity so as to have some of the threads of its framework hanging loose. These are dipped in a mixture of pitch and wax of a sufficient consistency to allow of the moulding by the fingers of a narrow stalk, which in this way forms a portion of the instrument. Into the catheter he passes an elastic gum bougie exactly fitting it, which is less rigid than a metal stilette would be, and possesses sufficient elasticity, while it is strong enough to cause the wax to penetrate the obstacle. Carried down to the stricture, after awhile the wax becomes warm and soft, and, on pressure being made, a portion of it penetrates the obstacle—the elastic body supporting it perpendicularly in the axis of the urethra.

Dr. Leroy has a section upon the *differential* diagnosis—*i. e.*, upon the means of distinguishing the various species of stricture he has described. The nature of the stream of urine does not indicate this, or even for certain the existence of a stricture at all. Old strictures, as a general rule, pass into the *fibrous* or *callous* state; but not necessarily so, for in the present work cases are cited wherein the stricture, even at the end of 20 or 30 years, retained its vascular character, and yielded to simple dilatation in a few days. If a bougie is grasped tighter and tighter by a stricture of the spongy portion for half an hour, and the constriction, then relaxing, is reproduced upon moving the bougie, the stricture is probably an *erectile* or *turgescent* one. When, after having been strongly grasped, the bougie soon becomes mobile and remains so, the stricture is fungiform, being produced by vascular distension. If a very small bougie has been tightly constricted and loosened as it proceeds on, and especially if it passes better when its point is twisted, a stricture with a succession of projections is present. The fungiform and vascular strictures again are sensitive and irritable, while the fibrous is callous, but ulceration of the mucous membrane produces irritability; and the membrane posterior to any stricture is often very sensitive, so that the excitement of pain after passing a stricture is by no means, as stated by some, a sign of false passage having been made. Abundant bleeding, especially in jets, is a sign of a varicose stricture. When we find a medium-sized catheter arrested, and a conical gum bougie pass easily, we may admit the presence of a *valvular* stricture, which is more common than is believed. When the valve is inclined towards the bladder it may produce retention, and yet admit the passage of a large bougie. At the best these marks of diagnosis are but approximative.

Treatment.

Before proceeding to discuss the treatment of stricture, properly so called, this author makes some remarks upon *contraction of the prepuce and of the orifice of the urethra.* A chronic phymosis gives rise to many local inconveniences, but may also lead, by the obstacle it presents to th-

free passage of the urine, to the most serious affections of the deeper seated parts, as inflammation of the urethra, bladder, testes, &c. In a case related, the urethra from this cause was destroyed to the extent of 4 centimetres. On the other hand, the prepuce itself may become inflamed and changed in structure from the contact of unhealthy urine. Incision or removal of the prepuce, according to the nature of the case, is required. The orifice of the urethra itself is not unfrequently closed by a valve or bridle; and in some persons it is anormally small. This last state may cause. during the whole of life, little or no inconvenience; but, if disease of the bladder or other parts of the urethra occur, it will require incision and dilatation. This part is also very prone to become converted by inflammation into a fibrous inodular tissue, and the state is only aggravated by the employment of dilatation by large catheters, while smaller suffice to empty the bladder and allow the inflammation to subside. Caustic, which has been frequently used in these cases, much aggravates the malady. Incision, which is usually required, causes considerable pain and hæmorrhage (except where the obstacle is only valvular,) and the best means of restraining the latter, is to introduce a large catheter, and retain it there as long as its compression is required.

Treatment of the Varieties of Stricture.—Dr. Leroy, like all other prudent practitioners, advocates no exclusive method of treating stricture. Indeed, he excludes no mode whatever, believing each is adapted to some particular form of the disease. His ingenuity in devising modifications of instruments, in order to meet every possible emergency, is indeed inexhaustible, and we are certain that many of those depicted in these pages are superfluous; while it would certainly require a life-time to acquire the nicety of touch requisite for the employment of some of them. Nevertheless, the author's precepts are sound and useful, and happily may be carried into effect with a less complex "arsenal." He places strictures, as regards treatment, in three categories. 1st. Those which allow both urine and bougies to pass. 2d. Such as allow urine but not the finest bougies to traverse them, and—3d. Such as present complete obstacle to both.

1. *Strictures which allow the passage of both the Urine and Bougies.*—A mere *valvular* stricture will frequently be destroyed, never to reappear, by a single passage of a good-sized instrument, and when the concavity of the valve is directed backward, the ball-bougie, before mentioned, becomes, as it is withdrawn, an effectual instrument, both for its detection and removal. A stricture too in its earliest stage, when there is but slight thickening of the mucous membrane, is sometimes cured by a single catheterism, especially if this ball-bougie be drawn to and fro over the projecting portion. Valvular strictures with a large base, or possessed of much elasticity, resist these means and require incision.

Dilatation.—This is performed in three different manners.

"The catheter may be left in the urethra, and changed but every three or four days—the slow or *permanent dilatation;* it may be changed every 6 or 7 hours, which forms the continuous, sudden, or to use a favorite term in medical lan-

guage, the *coup-sur coup dilatation:* Lastly, dilatation may be obtained by the retention of the bougie for a period varying from 5 minutes to 1 hour, gradually increasing their calibre in a progressive manner very important to observe, which is the *temporary* or *progressive* dilatation. Each of these methods is proper for certain strictures; but it is seldom that we can at once determine which mode is likely to best succeed. We must, therefore, commence with the most simple and the most convenient to the patient, and, in these points of view, *temporary* dilatation is to be preferred. It does not oblige the patient to abandon his business, or even his pleasures, during treatment, requiring only half an hour's repose daily. It is not painful, and often cures as radically and as promptly as the permanent dilatation."

M. Leroy prefers, for the generality of cases, to all others, the *gum-elastic bougies*, by reason of their simpleness, resistance, and polish, employing the capillary, spiral, conical, or curved one, according to the exigencies of the case.

Temporary Dilatation.—When the point of the bougie becomes grasped by the stricture, if it is left for ten minutes or so, it will often be found that it can then be pushed in with a very moderate force; and attempts may be continued to pass a stricture as long as they occasion neither pain, fatigue, nor bleeding, but when these are produced, any further efforts should be deferred until next day. When the stricture is passed the bougie may be retained for a period varying from a minute to half an hour, according to the sensibility of the urethra. The majority of patients support the bougie for a quarter, half an hour, or a much longer period if required, without the least inconvenience; but some persons manifest the greatest irritability unless it is very shortly withdrawn. After two or three applications this sensitiveness usually subsides, but in some rare cases persists. Bleeding, belladonna, opium, &c., are of little use in relieving it. The best plan is not at first to attempt any dilatation, but to begin by accustoming the urethra to the presence of a smaller instrument than would be required for that purpose.

"An invariable rule in temporary dilatation is never to employ force in passing the bougie, introducing one at first which passes freely or enters with but slight effort; and never to increase the size of the bougie from day to day, *but at the same sitting*, *i. e.*, commencing with that which passed freely the day before. * * * * In the majority of cases the diameter of the bougie may be increased half a millimetre each *séance*, which makes about 20 days as the ordinary term of treatment. The following are the steps I usually pursue. In the two first *séances* one bougie only is introduced and left in a quarter of an hour; in the third, the bougie of the day before is first introduced, and then, after a quarter of an hour, one half a millimetre larger is employed, which in its turn is retained a quarter or half an hour: on the fourth, after the two first bougies have been passed, a third and larger is tried, and so on, increasing half a millimetre daily—taking care to commence by the bougies which entered easily the day before, causing each to be retained from five to ten minutes. Every second, or when the stricture is callous, every third day the smallest of the series is discontinued, commencing with the second, then with the third, until the largest, of 7½ or 8 millimetres, passes through at once. When four millimetres are reached, curved bougies pass with less violence than straight ones. * * * * In the great majority of cases, the painful sensation following the augmentation of the size of the bougie is relieved in ten or fifteen minutes, and the instrument grasped tightly at first, th

becomes free in the canal; so that if we did not allow it to remain in longer than five or ten minutes, as advised by some, and if we do not wait for the relaxation which follows the excitement produced by the introduction, we delay the treatment, for it is only after such relaxation the bougie can exert any mechanical effect. The *séances* usually last from 30 to 40 minutes, during which two or even three bougies are introduced, and retained from 10 to 15 minutes each. There is infinitely less irritation produced by using two or three bougies at a sitting than by employing at each a larger one at first than had ever yet been tried. * * * * * * This treatment by temporary dilatation, which continues from 10 to 30 days, very often produces, notwithstanding this is denied, durable cures: and does so almost constantly when the stricture is fungiform, vascular, or produced by a thickened mucous membrane. I have had occasion to see patients whom I thus treated in 1826–8, that is more than 15 years ago, and the stream of urine in these cases has continued the same size as immediately after treatment, *without a single bougie having been introduced since that time.*"—*Leroy*, p. 209–12.

Temporary dilatation does not give rise ordinarily to urethritis or any discharge, and much oftener suppresses such if it exist. In some irritable subjects, however, a single application will produce this. The testicle also occasionally becomes inflamed, when the treatment of the stricture must be suspended, but may be resumed *before resolution has completely taken place*, as soon as the more urgent symptoms have disappeared. The orchitis seizes the sound testicle in preference to re-appearing in that in which it has once appeared. To prevent this accident, a suspensory should be worn during treatment.

M. Leroy relates many cases in which dilatation, otherwise impossible, became practicable by means of the small bougie with spiral end.

Rapid, or Coup sur Coup, Dilatation.—M. Leroy observes that this is required when the stricture, after a certain degree of improvement, remains stationary, which is the case in the fibrous variety. It is highly useful also where rapidity of treatment is the main point, as when the patient's engagements allow of his devoting but a short space of time to himself, or when calculus of the bladder complicates the stricture. By this mode of treatment the catheter is increased in size every eight or ten hours, and the time occupied is but four or five days. This is the plan M. Lallemand now prefers, having abandoned his former predilection for the employment of caustic.

"Prolonged dilatation, even yet so generally practised, was abandoned by M. Lallemand, in consequence of its injurious effects; but more lately, having observed that cauterization is not applicable to all cases and does not prevent relapse, he sought some new method, and proceeding by progressive steps, he was induced to adopt the plan of *dilating* the stricture *rapidly*, having observed how easily we may pass from one sized instrument to another, and above all having proved that the cure is as durable as that produced by any other treatment; so that he was enabled to produce in two or three days results which formerly he could not have hoped for under as many months—preserving also all the advantages of dilatation without its inconveniences."

M. Leroy remarks that, when a regular increase of their size is observed, there is seldom any difficulty in passing the instruments, the first indeed being that which least easily enters. He employs the elastic gum catheter without the stilette, unless there is spasm of the urethra when this is re-

quired, in order that some resistance may be offered. He insists upon three rules being observed. 1. To wait before passing the second catheter until the irritation and swelling produced by the first subside, which they usually do in 24 or 36 hours. If an increase of the size be attempted before this, success is prevented; while, if the passage of the second be delayed, the others may rapidly follow. 2. Suspend the treatment when it produces painful micturition, bloody urine, &c. These symptoms rarely appear before the fifth day, when the treatment is in fact concluded, and they disappear on the removal of the instrument. 3. After a bougie of 7½ or 8 millimetres has been passed and retained in the uretha for 24 hours, some days' rest must be given the patient; and then, to assure the treatment, the three last numbers should be passed for half an hour during a week or so.

Permanent or Slow Dilatation.—In this mode the catheter is changed only every fourth, fifth, or eighth day. Although it is still much employed in the French Hospitals, M. Leroy considers there are few cases of even hard and fibrous stricture that require it, and, to be permanently useful, it must be followed for some days by temporary dilatation by means of large instruments, or retraction of the tissues occurs. The prolonged retention of the catheter is of indubitable advantage in cases of retention of urine from enlarged prostate, as it often produces a diminution of the engorged tissue. The bad effects which sometimes arise from this permanent dilatation have been strongly stated by Lallemand. Among these may be mentioned irritation of the mucous membrane and obstinate chronic catarrh of the bladder, inflammation, softening, and even perforation of that organ, the breaking or incrustation of the catheter, obstinate prostatic enlargements and discharges, swelling of the testes, deep-seated inflammation of the uretha, &c.

Flexible Catheters with Short Curves.—Dr. Leroy speaks highly of the great benefits which have resulted from the employment of gum-elastic catheters with a curve of but 34 millimetres. They are especially useful when there are deviations from the natural course of the canal, especially when these are produced by enlargements of the prostate.

Cauterization.—Dr. Leroy criticizes those practitioners who have frequent recourse to this, especially in strictures of the *spongy* portion of the uretha. He believes, also, that the *porte-caustiques* in use act upon too large a portion of the uretha, implicating the sound structures, since strictures as a general rule are very short. He has invented another, which consists of a thin *porte-caustique* having a knobbed or olivary extremity and apertures at its sides; when this has been passed through the stricture, a narrow stilette containing the caustic is passed into the tube and the caustic carefully applied at the side as the instrument is withdrawn, thus forming the *retrograde cauterization*, applicable only where small instruments can pass the stricture, but for which dilatation has proved insufficient. He never uses this until dilatation has been tried. He dwells upon the great necessity of caution in the employment of caustic, for if it be applied too deeply or too frequently, additional inflammat on,

instead of interstitial modification, is excited, and the stricture becomes harder than ever. A few days after each cauterization, the state of the stricture should be examined by a bougie, and, if found soft and yielding, the treatment should be completed by dilatation.

M. Lallemand, formerly one of the chief advocates for the use of caustic,

"After having rendered its application more simple, easy, and safe, has nevertheless renounced its employment in most cases. The first objection to cauterizing the interior of strictures, is the difficulty of limiting the action of the nitrate of silver to the portion of the canal where the obstacle is situated, so that the healthy parts anteriorly or posteriorly may not become affected by it. The next is the tendency to relapse after a longer or shorter period, and the necessity at last of having recourse to dilatation in patients who were regarded as cured by caustic. It does not follow that this method should be entirely rejected, for there are cases in which it cannot be replaced. Thus, when the interior of a stricture is excoriated or ulcerated, or the neighbouring mucous membrane is sensitive or inflamed, the presence of a catheter produces spasms and nervous symptoms which prevent the patient supporting it, and are renewed by any fresh attempts at its introduction. Here cauterization changes the vitality of the parts, leads to the cure of complications, and causes the disappearance of the excessive sensibility."

Scarification.—This is recognised by all as a useful proceeding in the case of bridles, valvular folds, &c., but difference of opinion exists as to its applicability to stricture which resists dilatation and caustic: but M. Leroy has no doubt of its occasional utility, conjoined with dilatation, in the treatment of callous stricture, although it often fails. In other cases, without curing stricture, it has rendered the passage of bougies more easy.

2. *Treatment of Strictures which allow the Urine but not Bougies to pass.*—In these cases there is not retention of urine, and they are to be treated by either the continuous pressure of a bougie or direct cauterization. M. Leroy observes, that the constant retention of an instrument in close contact with the strictured part is difficult, but when it can be accomplished, and he proposes an apparatus for the purpose, the stricture often becomes softened and tractable. Another plan, which does not require confinement in bed, is to press the end of the instrument against the obstacle for a quarter or half an hour daily. After each sitting, a small bougie should be attempted to be passed. This plan wants patience, for whole weeks may pass without any apparent progress being made. When a stricture cannot be passed, *direct cauterization* becomes also a proper mode of treatment, the retrograde being that which is to be put in force in cases where small instruments can be introduced. The application of the nitrate of silver requires, however, the greatest nicety to avoid getting out of the tract of the urethra.

3. *Treatment of Strictures producing complete retention of Urine.*—Here unnecessary delay endangers life itself; yet, before resorting to more forcible measures, the various descriptions of bougie calculated to pass difficult strictures must be tried, in conjunction with the employment of bleeding, baths, &c. Dr. Leroy has derived no benefit from the application of belladonna in these cases, but he has known tobacco smoke produce a favourable relaxation. If other means are unavailable, *Forced Catheter-*

ism must be had recourse to, but the thrusting of large metal instruments through the obstacle, as recommended by Mayer of Lausanne, is a very dangerous practice, tending as it does to produce lacerations. A small catheter is to be pressed rather than forced against the obstacle for the space of an hour. During the first quarter of an hour the pressure is sometimes more advantageously made by means of a conical catheter, substituting a cylindrical one when its point has commenced the penetration. M. Leroy recommends *incision* of the urethra posterior to the obstacle, only in case of a calculus being there detained, in which case he makes it through the rectum. During 20 years' practice he has had only once to *puncture the bladder*, and recommends that this should also be accomplished through the rectum.

External Incision of Strictures.—M. Leroy, we have seen, in cases of impassable stricture, occasionally opens the urethra posteriorly to the stricture; but M. Lallemand not infrequently cuts down upon the strictured part itself. He does this when the obstacle to the passage of the urine is situated externally to the mucous membrane, and is constituted by tumors or indurations developed in the spongy tissue, or more superficially. Such nodosities may be found near any part of the canal, and dilatation of the urethra only temporarily repels them, while caustic applied to the urethra is of course hurtful. M. L. finds, by cutting completely through these obstacles, he induces their suppuration (which sometimes occurs naturally,) and eventual removal. The canal itself must be penetrated, if this is necessary to secure a complete division of the nodosity.

M. Lallemand practises the same operation under other circumstances. Thus, in a very old case, the stricture was not excessively narrow, but the urine passed only guttatim, and the urethra was so irritable as to bear no instrument whatever to pass, an incision was practised with the best effect. In another case, the stricture consisted of an elastic ring, like caoutchouc, which always resumed its former contracted state the instant the catheter was withdrawn.

"In every case of retention of urine produced by an obstacle accessible to a cutting instrument, it is better to have recourse to incision than to forced catheterism or puncture of the bladder. Guided by a large instrument passed as far as the obstacle, this must be exposed by a free incision of the skin, extending above and below it, so that a clear view may be obtained, and danger of infiltration of urine prevented. The portion of the urethra opposite the stricture is next to be divided, so that its anterior orifice may be brought into view, or that it may be found by a small grooved director passed in different directions, along which a narrow bistoury is to be slided, and the whole induration div ded. If, as is very improbable, this anterior orifice cannot be found, the portion of the canal immediately posterior to the stricture now distended by the urine must be opened, in which case the obstacle would be penetrated from below upwards, and from behind forwards. The lips of the wound are to be brought together over a catheter, which is to be left in the urethra until cicatrization occurs. This manner of proceeding offers great, immediate and consecutive advantages over formed catheterism and puncture of the bladder. It is less dangerous, is a more certain remedy for the retention, and procures a durable cure. * * * * * * * It may be objected, the stricture may be such as to prevent our penetrating the obstacle from before or behind; but, even in this case, the obstacle would not be more easily overcome after puncture of the bladder. The worst

that could happen after the incision would be the formation of an urinary fistula behind the stricture, an inconvenience surely far less than that which would be occasioned by the retention of a catheter in the bladder above the pubes."

Traumatic Strictures.—M. Lallemand makes several observations upon traumatic stricture, in which the urethra becomes narrowed in consequence of external violence, rupture, loss of substance, unskilful catheterism, laceration by particles of calculi, ulcerations, &c. The *treatment* must depend upon the nature of the cause, and the period when the case is seen. After external violence, if an antiphlogistic treatment be vigorously pursued, complete resolution may sometimes be obtained. When retention of urine occurs, a small pointed catheter would be likely to induce false passage, and a very large one to distend the parts too much, so that a middle size should be passed. If the *hemorrhage* from the canal is moderate, it is highly useful in depleting the parts; but, if it become too profuse, it is best arrested by leaving as large a gum-elastic catheter in the urethra as can be passed, which at once provides the requisite compression and guards the parts from the contact of the urine. As soon as there is no fear of augmenting the inflammation by the presence of a foreign body, larger and larger catheters must be introduced in cases of traumatic stricture, so as to keep the canal distended during cicatrization. The cure is somewhat delayed in this way, because, by separating the edges of the wound, there is a larger space to fill up, but the cicatrix so produced, by being thinner, possesses less contractile power, and is more easily dilated subsequently. If, after the treatment has ceased, we find the stream of urine become smaller, we must have recourse again to the catheter, beginning with a small size. The probability of this subsequent dilatation being occasionally required, is not always sufficiently impressed upon patients. The older the traumatic stricture is, the more perseveringly must dilatation be repeated or prolonged; for, without this, the contractile tendency of the cicatrix will never be overcome. As catheterism becomes easier, the patient should be taught to practise it on himself, as in this way the case will be more perseveringly treated. *Cauterization* is not proper in these cases, except when employed very lightly in the thin membraniform strictures which result from ulcerations; but in all cases dilatation is also eventually required.

Spasmodic Stricture.—M. Lallemand observes of this—

"Its treatment requires neither permanent dilatation nor cauterization, although a light superficial application of caustic has in certain cases advantageously modified the mode of action of the mucous membrane. Narcotics, employed internally or externally, are usually preferable. Narcotic injections, thrown into the canal and kept there by pressure on the glans, or the passage of a catheter smeared with opiated ointments down to the obstacle, occasion a local torpor which allows the instrument to be gradually carried into the bladder. The action of these substances is not always confined to the canal. A patient suffered from fever and alarming nervous symptoms every time that catheterism was attempted. Morphine ointment was employed, and the absorption was such, that symptoms of poisoning by opium manifested themselves. As soon as they were dissipated the instrument passed freely. These patients require that catheterism should be performed with the utmost gentleness and patience. It is not enough to warm

the catheter and smear it with opiates, the surgeon must also suspend all pressure when he finds it grasped or stopped, and quietly wait for the subsidence of the spasm before endeavouring to advance a little farther. Without such circumspection he does much mischief, although the catheter be not too small or pointed, and certainly he would not reach the bladder, for the slightest error increases the constriction of the canal, and laceration would render catheterism impracticable."

Dr. Leroy's concluding Chapter treats of the important subject of the

Complications of Stricture.

1. *Calculi in the Urethra.*—Some persons pass small calculi in truly surprising numbers, when the urethra is free; but, when this is not the case, the stone is detained in the urethra, and either produces complete retention of, or additional difficulty in, passing the urine. When it becomes impacted, it is soon surrounded by a tumefaction or exudation of the mucous membrane, while a copious discharge may take place from the urethra. The obstacle to the flow of urine is more dependent upon the form than the size of the calculus; and, the urine finding a passage only along one of its surfaces, the urethra usually becomes distorted. If the stricture is not very close, the calculus may sometimes be displaced by a bougie, and the urine allowed to flow, but this is difficult when it becomes impacted behind a close stricture, in which case the small twisted bougie will oftener insinuate itself between the wall of the urethra and the stone than any other. The calculus sometimes long remains stationary; but when inflammation seizes any of the urinary organs, it enlarges from the deposition of phosphates. Dr. L. gives the very questionable advice to remove it by crushing it with the lithotrite instead of extracting it by external incision.

2. *Gleet.*—The discharge which strictures give rise to at first proceeds from the phlogosis of the mucous membrane situated posteriorly to them; but sooner or later the whole canal participates in this condition. In most cases this effect disappears after the cure of the stricture, however long it may have been present. Very frequently the urethro-prostatic discharges have been mistaken for spermatorrhœa. Nevertheless, the stagnation of the urine posterior to the stricture gives rise to phlegmasia and dilatation of the ejaculatory canals, whence may result a flux of seminal fluid. Numbers of substances, both of the vegetable and mineral kingdoms, have been employed to arrest these discharges. They operate not only as astringents of the mucous follicles, but also by coagulating the albumen which forms so large a portion of the fluids discharged from the urethra. It is important to observe that the sulphates of copper, of zinc, and of alum, which coagulate the albumen when used in moderate proportions, re-dissolve it when employed too strong, and thus may seem to keep up a discharge they first diminished. The nitrate of silver, in small doses, coagulates the albumen; in large ones, it combines with and cauterizes the tissues. Every one knows that nitrate of silver will often suppress these discharges, but it should also be known that, when used to this end, it sometimes induces inflammation and abscess of the prostate. Employed in the large proportions it so often is at present, it often lays the founda-

tion for stricture. Where the nitrate is required, Dr. L. prefers making a slight application of it in substance; but frequently finds this unnecessary by employing the following ointment: Kino 10 parts, Sulph. Zinc. 1 part, Lard 20 parts.

"It is important to observe that these urethal discharges, especially those in which the prostatic fluid prevails, are sometimes accompanied by weakness of the limbs, almost paraplegia, giddiness, dulness of intellect, and all the symptoms M Lallemand has noted as usually accompanying spermatorrhœa, although neither daily nor nocturnal pollutions have occurred, or a minute microscopic examination been able to detect a single zoosperm. Further, an engorged state of the prostate without any prostatic discharge, may give rise to this same enfeeblement of the cerebro-spinal system; and, to meet an objection that may be drawn from M. Rayer's work, I will add, in a good number of these cases, there is no symptom of nephritis, and that the thick and puriform condition of the urine disappears when the bladder is emptied by the catheter several times a day—a proof that the deposit does not proceed from the kidneys. * * * * * * * * * * On the other hand, I may observe, that well-proved seminal emissions may, in some cases, become almost continuous, and last during several years without impairing the general health, the muscular energy of the lower limbs, or the intellectual powers. I have been able several times, by passing a few drops of rosemary or lavender oil down to the vicinity of the neck of the bladder several days in succession, to arrest these seminal discharges, and strengthen the genital organs."

3. *Infiltration of Urine.*—Examples of fatal effusion of urine as a consequence of stricture are unfortunately but too frequent. The delay with which patients seek assistance, deceived often by the fallacious hopes which urine running from the urethra by regurgitation gives them, is usually the cause of this. When we find extensive destruction of the urethra, which often takes place in a latent manner, we must not think that such large aperture has been made at once; it results rather from a destructive gangrene, which destroys and dissects out all the neighbouring parts to which the urine gains access. Incisions into the infiltrated parts must be largely and promptly made, and where the infiltration has been gradual, tending to the production of abscess rather than gangrene, they may arrest the mischief.

"There is one region of the urethra where this slow and successive infiltration puts on quite a peculiar character. I speak of the bulb, and the spongy portion surrounded by the bulbo-cavernosi. More adherent at their edges than at their centre, and surrounded by the sheath forming the superficial fascia of the perinæum, these muscles are raised at their point of contact by the swelling of the indurated cellular tissue into which urine has been infiltrated little by little. Confined at the sides, and finding less resistance at the middle, the increase takes place in the centre and below, giving rise to a kind of crest or *vomer*, which extends from the bulb, having a narrow base of an inch, and a projection of about two inches. These characteristic crests sometimes undergo resolution after the occlusion of the fissure of the urethra, through which the urine oozed out. At other times, after remaining stationary during one or several months, the induration softens at some point, and a succession of small abscesses form, discharge, and close up, without giving issue to a single drop of urine. If by bougies we can re-establish the integrity of the urethra, this indurated tissue gradually undergoes resolution. Sometimes the reproduction of the stricture entails each time a re-opening of the fissures, and a new formation of this crest--

like infiltration. Sometimes the indurated tissue rapidly suppurates, but this is rare, and only occurs when, in neglected stricture, the perforation has become much enlarged, and the infiltration more abundant."

4. *Urinary Abscesses.*—These are of two kinds; those which result from small and slow infiltrations of urine, and others which do not, at least originally, communicate with the urethra, but result from some external cause or the extension of inflammatory action from within. The last may be induced by the too-long retention of catheters in the urethra during treatment of stricture. by the too sudden increase of the size of the bougie: by cauterization, especially when the caustic comes in contact with the healthy portion of the canal: by the impaction of a portion of calculus in the urethra; and by the peculiar local sensibility of some patients. All these abscesses, from whatever cause proceeding, should be promptly opened; but the catheter, which should be introduced when there is fistulous communication with the urethra, must be abstained from when there is not.

5. *Urinary Fistula.*—Sometimes the external orifice of an urinary fistula is placed very far from the perforation of the urethra, and a case is related in which it was placed at the upper-third of the thigh. It is rare to find the urine at first escaping from the urethra by several apertures, but in the course of time, as many as ten or twelve may be observed in some patients. The amount of urine passed by the fistula varies much, being occasionally the entire quantity, and in others a mere oozing. It is not uncommon to find calculous deposits in the track of the fistula, or in the urethra, just before the fistula is given off. As a general rule, the fistulæ are best treated by leaving a catheter in the urethra, but some are not only not cured, but are aggravated by this measure—the aperture closing as soon as the instrument is removed. The calculi which may form must be extracted, and M. L. refers to a case in which 22 had to be removed, each of which was enclosed in a little sac requiring separate incision.

This chapter contains an appendix. detailing some new operative procedures for the relief of *Vesico-Vaginal Fistulæ.*

M. Lallemand's observations upon the Venereal Disease do not seem to us of sufficient novelty or importance to call for attention; and we shall defer noticing those upon Diseases of the Prostate until we are in possession of Dr. Leroy's work on that subject, which he promises shortly.

Dr. Leroy's Treatise is abundantly illustrated by wood-cuts and lithographs, exhibiting some of the more interesting lesions, and his endless multiplicity of instruments; but the absence of all explanatory references is a great defect.

We regret to find this author interspersing his valuable work with so many severe observations upon certain of his *confrères.* It is true the attack has come from their side, the sore point being the old quarrel concerning "Specialism" in surgery. We are happy to say that the recriminations, accusations, and harsh epithets, so freely bandied about among the Parisian medical men of note and reputation, are never employed by the same high class of practitioners, and scarcely ever by any class whatever, in our own country.

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THIS number contains papers by Dr. Lever, Mr. Alfred Taylor, Mr. France, Dr. Nottingham of Liverpool, Mr. Bransby Cooper, Dr. Birkett, Mr. Gossett, Dr. Oldham, and Dr. Barlow.

I. TWO CASES OF LABOUR, PROTRACTED BY INSUPERABLE RIGIDITY OF THE OS UTERI. WITH REMARKS. By *John C. W. Lever*, M. D.

CASE 1. *Lingering First Labour; Sloughing of a Portion of the Mouth and Neck of the Womb; Delivery by Cephalotomy; Purulent Arthritis; Death.*—A young woman was taken in labour with her first child, on the 10th Sept., 1844. The pains were lingering till the morning of the 14th, when they became much more severe; the *os uteri*, however, was then not much larger than a shilling, and its edges were hard and rigid. She was bled from the arm, and the extract of Belladonna was applied freely to the mouth and neck of the womb. Dr. Lever saw her in the afternoon of the 14th, and recommended repeated doses of tartar emetic until complete nauseation was produced; this to be followed by a full dose of opium. No decided advantage was thereby gained. At a subsequent visit, next day, he found that, during a violent pain, a mass, consisting of a considerable portion of the cervix uteri in a most fetid state, had been expelled a short time previously. The child was extracted with the aid of the perforator and crotchet, "without greatly increasing the laceration that has occurred." Things went on tolerably well with the patient until the second day, when the right shoulder and elbow-joints became swollen and excessively painful; the metacarpal joint of the left index finger was also affected. There was no tenderness of the abdomen, and the lochia were free, but fetid. She appeared to improve for the next six days; but then (Sept. 22nd) "she was seized with shiverings, followed by intense heat and copious perspirations: almost every joint became swollen and painful, and her agony was extreme." She died on the morning of the 25th. No post-mortem examination was allowed.

"Many cases," says Dr. Lever, "are on record similar to the one I have related, in which, during labour, the os uteri has been torn completely off. The first specimen of the kind was produced before the Royal Medico-Chirurgical Society of London; and an account of that case, given by Mr. N. P. Scott, of Norwich, will be found in the 11th Vol. of the Transactions of that learned body. Soon after, a similar instance was reported by Steidele. In the 16th Vol. of the Dublin Journal will be found a brief report of two cases, related by Dr. Kennedy at the Meeting of the Dublin Obstetric Society. At page 52, of the same volume of the Dublin Journal, a case is related by Mr. Power, on the authority of his friend and colleague, Mr. Hugh Carmichael. The patient was a primipara, young, and unmarried." P. 179.

In reference to the arthritic symptoms, Dr. L. remarks that, of all the forms of puerperal disease, there is none so virulent and unmanageable as "puerperal rheumatism." The case is not unfrequently set down as rheumatic fever; but it is of a much more serious nature. Purulent infection of the system has taken place; and, in truth, we have one of the worst varieties of puerperal fever to deal with. Bouillaud has described several cases of the kind, under the appellation of "arthrite rheumatismale puerperale." It deserves notice that the urine was albuminous in the above case, when the arthritic affection made its appearance. Dr. L. is inclined to believe that these two phenomena are very frequently associated.

Case 2. *Lingering Labour—Section of the Os Uteri—Speedy Recovery.*—A woman, at the age of 20, became affected with a *procidentia uteri* in consequence of lifting a heavy weight. A ball-and-socket pessary was ordered, at the time of the accident, to be worn. Two years subsequently, she was an in-patient of St. Thomas Hospital for the same displacement, which was then attended with so much inflammation as to require a protracted course of antiphlogistic treatment. When she got well, she married; 12 months after this date, she miscarried with a five-months' child. Four years since, she married her second husband; and, in March, 1844, became pregnant for the second time. When labour came on, the *os uteri* was found extremely rigid and undilatable. She was bled, purged, and nauseated with tartrate of antimony; but all with little effect. Although labour had continued for upwards of 48 hours, the uterine orifice merely admitted the tips of two fingers, and felt like a hardened ring. It was then thought advisable to divide "the whip-cord margin of the os uteri towards the posterior part of the sides of the pelvis, in the direction of either sacro-iliac synchondrosis. The incisions were made during the contraction of the uterus; the patient made no complaint; in fact they gave her no pain." In the course of three hours from this time, the patient was delivered of a female child. Eventually she recovered.

In the remarks appended to this case, Dr. Lever very decidedly reprobates the practice of "artificial dilatation," as recommended by several writers, in the treatment of extreme rigidity of the uterine orifice: he professes himself "a strong advocate for the employment of incision." As a matter of course, the operation is, on the one hand, not to be had recourse to until the effects of bleeding, tartar-emetic, opium, warm baths, &c., have been fairly tried; and, on the other, it should not be delayed too long, until the patient's strength has become exhausted from protracted severe suffering. "The operation"—that of incising the *os uteri* in one or more places—"is unattended with danger, unaccompanied by pain, and, if rightly performed, free from copious or dangerous hæmorrhage." It does not appear that Dr. Lever has had occasion to perform the operation before the occurrence of the present case.

II. Two Cases of Extra-Uterine Fœtation.

The other obstetric article in the present number is one by Dr. Oldham,

the colleague of Dr. Lever at the hospital, in which an account is given of two cases of fatal extra-uterine pregnancy. In the first case, symptoms of Abortion came on during the fourth month of gestation; they subsided under the treatment employed. Ten days afterwards, however, the patient, while in the water-closet—having previously over-exerted herself by walking—felt something give way within her; this feeling was followed by intense abdominal pain and syncope. She never rallied, but died on the following day. On *dissection*, it was found that the right Fallopian tube, which contained a fœtus of between three and four months' development, had become ruptured, and that, in consequence, a large quantity of blood had been effused into the abdominal cavity. As usual in cases of extra uterine fœtation, the womb itself had become as much enlarged as if the fœtus had been contained within its cavity; its inner surface too was lined with a highly developed deciduous membrane.

Case 2.—The woman considered herself about two months pregnant, when she was suddenly seized, while engaged in washing, with violent pain in the pubic region, followed by vomiting, syncope, and alarming prostration. She lingered for about 30 hours, and then expired. On *dissection*, four pints of blood were found extravasated into the abdominal cavity. On the left side of the fundus of the uterus, an aperture was seen, from which the blood had flowed. The uterus was considerably larger than in the unimpregnated state, and its inner surface was lined with "a rich and most exuberant growth of deciduous membrane." Close to the left horn of the uterus, a cavity had formed in the muscular substance of its parietes; this had burst outwardly. The excavation was small, and would hardly enclose a small horse-chesnut. No communication could be traced between it and either the Fallopian tube or the cavity of the uterus. Although no trace of ovum could be discovered, yet the phenomena of the case led Dr. Oldham to the decided opinion that it was one of "interstitial or parietal extra-uterine pregnancy." Mr. Wharton Jones, who examined the preparation along with him, came to the same conclusion.

The observations, with which Dr. Oldham closes his narrative of these two cases, are at all events ingenious, if not quite satisfactory.

"The causes which have been assigned for misplaced gestation are very numerous and various; but, in my opinion, the two cases which have been related indicate the particular cause which is most frequently in operation:—I refer to the existence of false membranes, which, either by girthing the tube itself, or by fixing different parts of it, form a partial or complete stricture of its canal, or embarrass and restrain its movements, impeding it in its office as a conducting tube for the ovum. The development of the ovum without the womb is due, therefore, in these instances, to a mechanical error. It must have struck every one, who is in the habit of making post-mortem examinations, how frequently these membranes are found about the internal organs of generation. Sometimes they are so abundant, and so completely envelop the uterus and its appendages, that sterility is the necessary result. This is the case generally with women who have led abandoned lives, and is evidently caused from too frequent sexual excitement. But very often they leave the passage of the tube open enough to permit the transmission of the semen; and the evil consequences are felt only either during or immediately after the escape of the ovum. A most important

practical point to be noticed is, that the peritoneal inflammation which attends their formation produces but few symptoms compared with peritonitis in other parts of the abdomen. I have frequently found these false membranes in women whose history has not indicated any known attack of peritonitis; and I feel sure that they are produced in the course of illnesses, where the pain about the pelvic region is not a prominent feature. In the first case, the false membranes were no doubt formed about the tubes and ovaries after the first labour; they were not sufficient completely to obliterate the passage of the tubes, or to spoil the relation of their fimbriated extremities to the ovaries; but their presence diminished the chance of pregnancy, and caused, I suspect, the seven years' sterility which followed the first labour. I have known cases where, a few days after marriage, there has been pain and uneasiness on one or both sides of the pelvis, which has effectually been relieved by aperients, with hot narcotic fomentations and opiates; but sterility has followed; and I believe it to have been produced by the formation of these membranes around and about the uterine appendages. It is a matter of importance to bear this in mind, in reference to that class of puerperal diseases which are likely to produce them; and I have been in the habit of watching carefully those lingering traces of inflammatory action about the pelvis, which so often follow tedious labours or abortions, with the direct object of preventing them. The occasional use of leeches, and the application of the liniment. hydrarg. over the lower abdomen, or the empl. ammon c. hydrarg, with strict adherence to rest, and a careful diet, will do much to effect this purpose." P. 278.

III. The case of Poisoning with Arsenic, detailed by Mr. Alfred Taylor, need not detain us; as there is nothing novel or unusual in its details, and no doubt could exist as to the agent employed by the criminal—who was tried at the Berkshire Lent Assizes, 1845, for the murder of his child, found guilty, and executed. Our only motive in making any allusion to it is to express our utter surprise and indignation at the scandalous facility with which the most destructive poisons, in large quantities too, can be procured by the lower classes of society. Is not the disclosure of the fact recorded in the following paragraph utterly disgraceful in a country like our own?—

"Two bottles of white powder were produced by witnesses at the trial, to whom the prisoner had given them after the death of his children. One of these bottles was pronounced by the witness Carter to be similar to the one out of which she had seen the prisoner take the white powder to give to a neighbour.

"It was then necessary to determine the nature of the contents of each bottle, and for this purpose an analysis was required to be made during the trial. Each was found to contain white *arsenic* in fine powder, unmixed with any other ingredient, and the quantity in the two bottles, could not have been less than *five ounces*. Another bottle of a brown powder was also traced to the possession of the prisoner: this was proved to be *nux vomica*, which he had been in the habit of using for poisoning crows!" P. 196.

Ought such a state of things to be allowed to remain?

IV. On the Pathology and Treatment of Fracture of the Neck of the Thigh-Bone. By *Bransby Cooper*, F.R.S.

Mr. Cooper, it is well known, adopts the opinion which was so much insisted upon by his celebrated uncle, and is very generally adopted by

English surgeons, that Fracture of the neck of the thigh-bone within the capsular ligament, if accompanied with separation of the two portions, is never healed by genuine ossific union. If this view be adopted, it follows that the patient will not be subjected to the protracted confinement in the horizontal position, which must as a matter of course be deemed necessary by those who take up the opposite opinion. The various sorts of apparatus, that have been contrived with a view of maintaining a permanent extension of the limb, are pronounced by Mr. Cooper to be "useless, because they are inapplicable to the purpose intended; and highly injurious to the patient, who, at the period of life at which this accident occurs, is ill capable of supporting protracted confinement in bed, and the infliction of continued extension and pressure of the limb." It is generally known that the neck of the thigh-bone begins to undergo, or perhaps has already undergone, very material changes in its physical character and configuration, when a person passes his fiftieth year or so.

"Let any one examine the upper extremity of a healthy adult femur, and the neck will be found branching from the shaft of the bone at an angle of 45°; but if an old bone be the object of observation, the head will be found depressed upon a level with the trochanter major, so that the neck forms a right angle with the shaft, and is infinitely shorter than it had been in youth, indicating an altered state of nutrition depending on the relative condition of epiphyses in old age and youth." P. 216.

Mr. C. then points out the various peculiarities of a bone, surrounded with a synovial ligament, that render it incapable of genuine ossific union. He particularly insists upon the absence of those very tissues, which unquestionably play an important part in the reparation (the early stage, at least) of the breach, when this occurs in the shaft or more solid part of the osseous structure. It is quite obvious that there cannot be the formation of a provisional callus all round the fractured ends of the femoral cervix—as invariably occurs in all fractures of the shaft; otherwise the acetabulum would be completely filled up, and all movement of the joint would be rendered impracticable. Those cases where the fracture exists partly within, and in part without, the capsular ligament, afford also a most convincing argument in favour of this view of the question; for then "the bony union takes place up to the very edge of the attachment of the synovial membrane, and no further."

So far, all is intelligible, and will meet with very general assent from British surgeons. But Mr. Cooper proceeds to advance another position, which seems to be rather more questionable; it is this:—"the necks of old femora . . . . . have lost their power of generating phosphate of lime, *the deficiency of which it is that renders them so susceptible of fracture from the slightest violence*,"—(The Italics are ours.) This somewhat startling assertion is alleged to be based upon the results of certain chemical examinations of the neck and the shaft of the femur, which Mr. Cooper undertook with the view of determining the relative proportion of the earthy materials in each, and "of ascertaining whether any change, or, if any, what change, took place in the composition of the neck of the thigh-bone in old age, which might prove sufficient to account for its tendency to bend and to break at this period of life."

"The specimens of bone were selected with care, and portions being sawn off,

were weighed, and then burnt for a sufficient time in a muffle to destroy the whole of the animal matter, after which they were again weighed, and the result recorded. The quantity of bone burnt in each instance varied from 150 to 300 grains.

"The relative proportions of the phosphate and carbonate of lime were ascertained in a sufficient number of instances to prove that no perceptible difference worthy of remark occurred so as to mark, or even lead to the supposition that any change in the earthy constituents induced the physical alteration in the bone." P. 321.

Now the chief result (certainly unexpected) of these experiments has been to show, that the osseous matter of the cervix femoris always contains a less amount of earthy materials than that of the shaft of the same bone,* and that this deficiency or disproportion is much more considerable in advanced than in middle life. In one case, in which the cervix had been fractured—the age of the patient was 68—100 grains of this portion of the bone were found to contain not more than 16 per cent., (about the usual average in bones affected with *mollities*,) while the same quantity of the shaft contained as much as 53 per cent. of earthy matter.

"Aware," says Mr. Cooper, "that these results differ entirely from the received opinion that the liability to fracture in old age arises from an excess of bone earth, I have not hastily arrived at an opposite conclusion; nor should I have trusted to actual experiment as the basis upon which to found an argument militating so strongly against an established aphorism; but, reflecting on the mode in which the reparation of bone takes place in ordinary cases of fracture, it appeared to me little short of ridiculous to expect, in old age, an excess of boney matter, in a part which is so imperfectly vitalized, and which indeed, in common with all the epiphyses, is so many years consolidating into bone. In common fractures we find that animal matter is abundantly secreted within a few hours of the accident, whereas many days elapse before the formation of bone is even attempted; thus proving that a greater effort is necessary on the part of Nature to accomplish the production of bone, than is required in the reparation of any of the softer structures. When, therefore, the powers of the constitution are gradually diminished by age, it seems but reasonable to expect that a certain state of the system must ultimately arise, in which bone earth is liable to be deposited in the more organized and vascular parts of the body; and hence, consequently, arises a diminution of the solid constituents of the bones, and especially in those which possess the least degree of vitality. The epiphyses are the first parts of the osseous system which become deteriorated from the want of earthy deposit, and the deficiency is made up by the deposition of cartilage, gelatine, and other substances more easily secreted than bone; whilst the tendency, at this period of life occurs to the secretion of bone in the more highly-organized structures, as in the aorta, lungs, prostate gland, and kidneys, and not unfrequently giving rise to ossifications, or the formation of phosphatic calculi in the bladder or prostate gland. In support of this opinion we find that the complaints alluded to for the most part occur at that period of life in which we are led to expect a want of power in the imperfectly-vitalized structures of the body; and these experiments may serve to convince us that we ought not to expect boney union in such situations, and that this becomes all but impossible after the middle period of life, as there ensues then a disposition rather to diminish than increase the due pro-

* If Mr. Cooper's experiments be correct, the statement, here made respect the neck of the thigh-bone, is believed to be equally true of the epiphyses of bones in general.

portion of solid matter, and most especially in the articular extremities of the bone." P. 224.

There is more than one physiological and pathological position in this extract which will doubtless somewhat discompose the reader, who has always been accustomed to believe that the bones in old age contain more earthy matter than they did in middle life. We need scarcely say that Mr. Cooper's chemical experiments must be repeated by those accustomed to such researches, before we can receive them as entitled to much authority; the discordance between the results obtained by him and other experimenters is so very great. According to his examinations, the average quantity of bone earth in the shaft of the femur in an old person does not exceed 55 per cent.; whereas it is usually stated as high as 75, and even considerably more. We wonder that Mr. Cooper did not think of testing the results of his calcining experiments, by ascertaining the amount of earthy matter lost by subjecting the portions of bone to muriatic acid. Had he done this, he would have been enabled, at the same time, to examine not only the quantity, but also the structure, of the cartilaginous substance left behind.

V. SELECT CLINICAL REPORTS, WITH OBSERVATIONS. By *George H. Barlow*, M. A. and M. D.

Dr. Barlow has shown, in a previous paper (noticed in our number for January last,) the influence of obstruction in different parts of the Bowels, and also of impediments to the free passage of the blood through the portal system of the Liver, upon the quantity of fluid secreted by the Kidneys.

In working out the proposition there enunciated—"If a sufficient quantity of water cannot be received into the small intestines; or if the circuit through the portal system into the vena cava ascendens, or thence through the lungs and heart into the systemic circulation be obstructed; or if there be extensive disorganization of the kidneys; the due secretion of urine cannot be effected"—he now proceeds to examine the effects of obstructed circulation through the Heart and Lungs upon this secretion.

The first case related is one of *Dropsical Effusion from Pulmonary Obstruction*, arising from neglected Bronchitis: the legs had become very œdematous, and there was a good deal of fluid in the abdomen. The bowels were purged with the compound jalap powder, and the kidneys stimulated with saline diuretics and nitric æther. A pill—consisting of one grain of Pil. Hydrarg., Pulv. Scillæ, and Pulv. Ipecac. and two grains of Extr. Hyosciami—was also given night and morning. In the course of ten days, the woman had lost her cough and dropsical swelling:—she was soon convalescent.

"The effects," says Dr. B. "upon other organs, of repeated or long-continued bronchitis, are, as is well known, distension of the right side of the heart, with general venous obstruction, engorgement of the liver, œdema of the lower extremities; and, in extreme cases, the obstruction to the circulation through the right side of the heart may be such as to produce œdema of the face and superior

extremities; but this, I believe, rarely happens until the distension has been so great, and so long continued, as to lead to organic change." P. 286.

The next case is headed *Bronchitis with Emphysema of the Lungs—Ascites and Anasarca—mild antiphlogistic and diuretic treatment—Recovery.* The symptoms rapidly subsided under the use of purgatives and mild diuretics.

In both of these cases, the passage of the blood through the lungs being impeded, the due secretion of the urine was interrupted; for, in the first instance, the patient is stated to have passed hardly four ounces in twenty-four hours; and in the second, it was scanty. He found that, when this obstruction was diminished by the reduction of the bronchial inflammation, the further secretion of urine was readily effected. We have, then, in these cases, evidence of the truth of the proposition that, when the passage of the blood through the pulmonary vessels is obstructed, the due secretion of urine cannot be effected.

It will be obvious that in all such cases there must necessarily be congestion, in a greater or less degree, of the Liver; this congestion arising from the obstruction to the portal circulation, caused by the pressure backwards of the blood in the right cavities of the Heart. Hence the importance and efficacy of stimulating the hepatic function, and of causing a copious secretion from the mesenteric vessels by the use of hydragogue purgatives. The application too of blisters, over the part of the lungs chiefly affected, should seldom be omitted; and the atmosphere of the patient's room should always be kept warm and rather moist. This precaution is often overlooked; but it is one of much importance.

The next three cases recorded in Dr. Barlow's paper, are instances of "Dropsical Effusion connected with Disease of the Heart." In the *first*, this disease was extreme dilatation of the right cavities, and also of the left auricle, with slight narrowing of the auriculo-ventricular valves; in the *second*, there was a flabby large heart, and a granular tuberculated state of the mitral valve; and in the *third*, there was dilatation and hypertrophe of both ventricles, and also disease of the aortic valves. Dr. Barlow thus explains the *modus operandi* of these various lesions in inducing the same morbid consequences:—

"The reason of the same effects having been produced by these different lesions is sufficiently obvious: namely, that the obstruction was propagated backwards through the whole course of the circulation; the left ventricle being unable to empty itself, the passage of the blood into it was of course impeded, and the result was the same as in Case 6, where there was an obstruction to the passage of the blood into the ventricle, and Case 7, where there was regurgitation from it: the series of diseased action being, obstruction to the emptying of the left ventricle, both by contraction of its aortic orifice, and imperfection of its valves—dilatation of that ventricle, increasing the difficulty of its contraction more than was compensated for by the hypertrophy—accumulation of blood in that ventricle—engorgement of the auricle, then of the lungs—distension of the right heart, obstruction to the flow of blood through the cavæ—turgescence of the face, and congestion in the brain—engorgement of the liver, obstruction to the portal circulation and diminished secretion of urine—ascites and œdema." P. 303.

He then discusses some points in the history of valvular and other murmurs of the Heart; but it is really unnecessary to follow him in this discussion, as it must be quite obvious to every dispassionate enquirer that we are far from having any stable or trustworthy signs to indicate, with any degree of certainty, the seat and nature of the valvular lesion that is present in any particular case. As to attaching much consequence to certain "systolic murmurs," as evidences of the regurgitation of the blood through this or that orifice of the heart, the attempt has hitherto met with but little success. One observer has generally managed to differ very materially in his speculations from his immediate predecessor; and a third experimenter soon discovers that both his learned brethren have been at fault. Dr. Hope has given it as his opinion that "a decidedly jerking pulse denotes a free aortic regurgitation, and a decidedly weak and irregular pulse bespeaks great mitral contraction or free regurgitation." Dr. Barlow admits that this "proposition partially holds good in many, or even in most cases;" but he then proceeds to observe "that considerable disease of this (mitral) valve may exist without a small or irregular pulse; and that we may have the very feeble pulse spoken of, and the mitral valve perfectly healthy." He sums up his observations in the following Corollary.

"If the reasoning which has been adduced above be correct, it must follow that intermission of the pulse is more likely to be produced by an obstruction to the flow of the blood into the left ventricle, than by regurgitation through the auriculo-ventricular orifice; since, in the former case, there is a want of that supply of the blood whereby the ventricle is stimulated to contraction; and in the latter there is not *necessarily* any great deficiency in this respect, although the force and volume of the arterial pulse may be greatly diminished by a portion of the blood being thrown back into the auricle." P. 309.

The last case, that is related, is one of a rather singular nature; the *right kidney was obliterated, and the left one was converted into a large sac or cyst.* The patient's constitution was cachectic and broken down, partly from intemperance, and in part from long-continued tendency to ague. When admitted into the Hospital, his abdomen was large and flabby, with an internal swelling on the left side, occupying the lumbar, half the umbilical, and most of the left hypochondriac regions; there was an incessant gnawing pain in the part. Dr. Barlow candidly confesses that he regarded this tumor as formed by an enlargement of the Spleen—a frequent sequela, it is well known, of protracted agues. The urine was abundant, pale, of very low specific gravity (1002,) and neutral. The man gradually became weaker and weaker; symptoms of coma came on, and he died in an epileptic fit.

Dissection.—The tumor on the left side of the abdomen proved to be the left kidney, which had become converted into a large sac that contained not less than two pints of limpid urine; its cortical substance was "of a pale fawn color, and soapy cartilaginous consistence, honeycombed by masses and deposits of cheesy purulent matter. In the left ureter was a constriction by inflammation, amounting to perfect obliteration at that point, about an inch from the pelvis of the kidney; the ureter above the stricture being enormously dilated, and below it about twice its natural

size. The right kidney was completely obliterated, a very small mass of fleshy fat alone showing where it had been: the supra-renal capsule being rather larger than usual: ureter very small, pervious."

A very curious circumstance in the case was, that in spite of the extreme degeneration of the renal apparatus, the excretion of the urine—of a limpid character indeed—was abundant till within 36 hours of the patient's death; just before this event took place, a pint had been drawn off by means of the catheter.

"If we apply to this fact," says Dr. Barlow, "the modern theory of renal secretion (for which we are indebted to Mr. Bowman,) namely, that the water is poured out from the little tufts which form the nuclei of the Malpighian bodies, whilst the solid ingredients are excreted from the lining membrane of the tubes which lead from these bodies, we shall be led to the belief, that, in the case before us, the seat of the disease was, primarily, in those tubes, whilst the Malpighian tufts remained, as far as their functions were concerned, intact. It is indeed rather difficult to understand how disease could have advanced so far in the tubes, and yet have allowed a free passage through them from the tufts; still the thing is conceivable, and we have almost demonstrative evidence that it was so." P. 314.

This valuable paper cannot fail to add to the reputation of its zealous and talented author.

VI. The remaining articles in this Number of these Reports do not require particular notice. Mr. France relates a curious case of Ossification and Dislocation of the Crystalline lens; and Dr. Nottingham one of Popliteal Aneurism, in which the femoral artery was tied with complete success. The patient, however, died within fourteen weeks after the operation from Delirium Tremens, brought on by the abuse of ardent spirits. An account is given of the appearances, found upon dissection, in the arteries of the affected limb.

The papers by Dr. Birkett and Mr. Gossett contain abstracts of the half-yearly reports, the one medical and the other surgical, of the Clinical Society attached to Guy's Hospital School. We may cull two or three short paragraphs, having a bearing upon some practical point.

Treatment of Chorea.—"In thirteen cases of chorea the sulphate of zinc was administered, and in twelve, with perfect success; three, in the persons of young chlorotic women, were treated with iron, two of whom were dismissed cured; and one case, of three months' standing, occurring just before puberty without assignable cause, yielded to the oxide of zinc, where the sulphate, electricity, and arsenic had been used in vain.

"In nine cases the disease was preceded by fright; and in two by rheumatic affection complicated with cardiac sounds." P. 233.

Treatment of Lepra.—"The very frequent occurrence of a disease of more inconvenience than danger, the obstinacy in resisting treatment, and the liability to recur, have called attention to lepra. The bath of pyroligneous acid has been found a very efficacious remedy, especially when combined with the internal administration of pitch. The ung. picis liq. has also been useful as an external application." P. 245.

Fatality of Albuminuria.—"The cases of albuminuria tell the usual tale; out of 15 cases five only were cured, and in four of these the complaint followed

scarlatina. The remaining case referred to as cured occurred in the course of an attack of erysipelas of the face. The case relieved was a complication of bronchitis with cardiac disease; and the remedies were, cupping to the loins, with antimony, followed by the sesqui-chloride of iron. The complications are of a two-fold nature: 1st, those which either precede or accompany the disease in the early stages; 2dly, those which do not arise till near the close of life. Among the first may be classed scarlatina and the diseases of the circulating organs—chiefly with respect to the direct performance of their functions—which are generally of long standing at the period of attack; and among the latter, affections of the head, indicated by convulsions; of the chest, by bronchitis and pneumonia; and of the general system, by anasarca and a tendency to serous inflammation." P. 247.

The Medical School of Guy's Hospital is, at the present time, unquestionably one of the most efficient and best-managed institutions in any part of the kingdom. Its pupils will have to blame themselves, if they do not become able and accomplished practitioners in after-life; for they have great and manifold advantages in having such talented and zealous men to guide and instruct them in their studies.

TRAITÉ D'HYGIÈNE, PUBLIQUE ET PRIVÉE. Par *Michael Lévy*, Professeur d'Hygiène Légale à l'Hôpital Militaire de Perfectionnement de Paris. 8vo. Tomes I. & II. à Paris, 1845.

Treatise on Hygiene, Public and Individual. By *Michael Lévy*, Professor of Hygiene. Two Volumes, 8vo. Paris, 1845.

THE present century has been particularly distinguished, both in this country and in many others of Europe, by attempts to determine through the means of exact and extended observations, the various causes of unhealthiness among large masses of the population. These inquiries have, from the circumstances of the case, principally referred to great manufacturing districts, though the more rural parts have not been altogether neglected. The rapid and unparalleled march of mechanical industry has necessarily attracted vast multitudes together, and one of the results has been, that all the causes of disease, both as relates to individuals and to communities, have received an intense degree of development, and have commanded a correspondent degree of attention. All enlightened Governments have thus felt themselves compelled to inquire into the subject with a view of providing some efficient remedies for evils so widely spread; hence the several Commissions of Inquiry and Acts of Parliament for promoting sanatory improvements which have been appointed and enacted in England, and hence also the Royal Ordinances and legislative provisions which have appeared during the last few years in France, Prussia, and Austria, for the regulation of labour, aad for otherwise ameliorating the health of mechanics and labourers in the great centres of manufactures and commerce.

In order to give a more definite direction to efforts like these, and at the same time to insure a scientific investigation of all the questions which

concern the preservation of health, public and individual, professorships have, in several countries been established, and, among other places, at Paris. That the best results must flow from public lectures on Hygiene, in which would be systematically investigated, in addition to the various modifying circumstances that affect individual life, such as temperament, habit, age, and sex, the more general causes, vitiated atmosphere, bad diet, injurious occupations, unhealthy climates, and so forth, which operate potentially on the human constitution in a highly civilized state of society, that such an exposition would be beneficial cannot be doubted for a single moment. In England, we believe there is no special course on this important subject, and yet there is no country in the world where, from the number of manufacturing and crowded districts, it is more urgently necessary to investigate how health may best be preserved, and disease prevented, by sanatory means. In the last number of this Journal an exposition of some of the evil consequences which have sprung from the apathy hitherto prevailing in these matters was given: and we are now anxious to direct the notice of our readers to the treatise recently published by M. Lévy, in which the whole subject of Hygiene is scientifically investigated.

The relations, utility, and objects of this branch of medical science are thus explained by the author:—

"Hygiene is dovetailed, as it were, with all the medical and natural sciences; it is tributary to anatomy, physiology, meteorology, physics, &c.; but it investigates the data which it borrows from them under a particular point of view; thus, whilst physiology considers the organic actions in themselves and in their mutual relations, it is the office of hygiene to examine how these same actions are modified by external agents, and by the reciprocal influence of the organs. The part of chemistry again, is restricted to decompose material substances, and to determine the laws of their combinations; whilst hygiene profits by the inductions which analysis furnishes respecting the effects of these substances, to discover the rules respecting their employment. But if hygiene thus borrows, it also gives; etiology and prophylactics, for instance, repose on it almost exclusively, whilst therapeutics draw from it more resources than from the materia medica. Again, it is impossible to study the effects produced on the constitution of man by the various things which he uses and enjoys, without being conducted to the causes which derange his health; to investigate all that may be hurtful to him is to pass in review all the foci of etiology, whilst to protect him from such injurious agency would be to render useless the intervention of medicine. Even when disease cannot be prevented, the treatment consists more in the judicious application of hygienitic principles than in the administration of special remedies. To regulate the temperature which is proper to the patient, his regimen, his clothing, his morale, is not this, with other similar precautions, the first duty of the practitioner, the essential guarantee for the success of all medication?"—*Tome* I., p. 51.

The author, after favorably noticing the practice of the ancients, who relied as much, or rather more, on the powers of nature than on those of art, proceeds to state, "public hygiene rests on medical statistics and political economy; it constitutes, strictly speaking, the only medicine that is possible for the masses. It only needs a little reflection to perceive that therapeutics generally fail when opposed to epidemic and endemic diseases; that the former, like explosions bursting upon crowded communities, confound the physician, and only allow his art to intervene with advantage

in the decline of the affection, when it approaches the character of a sporadic disease. Endemics, again, attacked in detail, only yield to return again with a new energy, and the constitutions which have submitted to these reiterated attacks, end by becoming deteriorated, in spite of all therapeutic efforts. But where art is powerless to cure, it is often granted to it to preserve; where it cannot hope to stifle the evil, it may succeed at least, thanks to the two-fold gift of hygiene, in restricting and attenuating it. Without the rigorous observance of the principles of this science, the vast establishments which Christian philanthropy consecrates to the solace of humanity, would become the seat of desolation and death: and it is only by the same means that the great reunions of workmen escape the double danger of human condensation and of industrial pursuits. Hygiene is, moreover, the tutelary deity of armies in the field; whilst in peace, watching over the health of the nation, and inspiring the legislature, she gives to the civil government a support which is the more certain, because it is derived rather from the happiness and welfare of the people than from the mere forms and conventionalities of authority."—*Tome* I., p. 52.

In prosecuting the important task which he has undertaken, M. Lévy divides the inquiry into two great branches, according as it affects individuals or numbers, and which he denominates "*Hygiène Privée*," and "*Hygiène Publique*."

The first three hundred pages are occupied with a detailed account of individual peculiarities—temperament, idiosyncrasy, age, hereditary acquirements, habits, &c.; but, as these particulars do not offer much novelty, we proceed to the more important division of the work, which treats of the various external agents capable of affecting the human constitution. Among the most influential of these are what the author, coining a word for the occasion, calls "*modificateurs atmosphériques*," or atmospheric agents—electricity, light, heat, humidity, and the air itself, as regards its pressure and chemical composition. It is difficult to isolate these, and to attach to each the precise influence it exerts; thus, with respect to solar light, it is combined, independently of the chemical rays, with solar heat, but that it exerts a decided influence on the nutritive actions is shown, among other circumstances, by the paleness of those, who like the Arabian women of rank, are habitually screened from the rays of the sun. The practitioner accustomed to see the unhappy population of the narrow and dark courts and alleys of great towns will recognise the justice of the following remarks:—

"The individuals who pass a large part of their life in obscure or badly-lighted localities, are not merely distinguished by the character of their skin; their flesh is soft and puffed up, as if infiltrated; they are struck with an atony in all the tissues, and are liable to effusions: such are individuals confined by misery in the most sombre and enclosed quarters of great cities; prisoners confined in gloomy dungeons; sailors, whose habitual post is in the hold or store-rooms; porters of houses in Paris situated in the most populous districts; workmen who are employed under ground, &c."

After remarking that these classes are prone to deviations of the osseous system, and corroborating this inference by the assertion of the celebrated Von Humboldt, that "deformity of the body and deviations from the normal standard are extremely rare in certain races of men, especially among the

people who have the dermoid system strongly coloured," M. Lévy states that the same observation applies, in a modified degree, in France. "It is (he says) incontestable that the southern population of France presents a conformation more regular and more beautiful than that of the northern, and even in part of the eastern, departments."—*L. c.*, p. 341.

With respect to resistance against the depressing influence of cold, this same kind of constitution, characterised by the predominance of the sanguiferous system, by firmness of flesh, by the coloration of the skin, by suppleness of motion, and by gaiety of spirit, is, it is affirmed, more enduring than the opposite or phlegmatic temperament, with its pale and relaxed fibres, its lymphatic aspect, and languid gait. This observation, made by the distinguished Surgeon-in-chief of the Grand Army, Baron Larrey, has been since confirmed by our Arctic voyagers. "I have remarked," says Larrey, "in opposition to the opinion commonly received, that brown persons of a bilioso-sanguine temperament, including almost all the southern countries of Europe, oppose a more energetic resistance to rigorous cold than fair people of a phlegmatic temperament, and generally than northern nations. We have, for instance, seen the Dutch of the third regiment of the Grenadiers of the Guard, composed of 1,787 men, perish almost without exception, for there only returned to France, two years afterwards, 41 soldiers; whilst two other regiments of Grenadiers, consisting almost exclusively of men born in the southern provinces of France, preserved a considerable part of their soldiers. The French, the Portuguese, the Spaniards, and the Italians, are, we again contend, those best adapted to support the vicissitudes of cold and heat in the bivouacs; "a new argument," adds Larrey, "that the inhabitants of southern countries have, in opposition to the assertion of the author of the '*Esprit des Lois*' (Montesquieu), more energy and means of resistance against the action of cold than the people of the North." If all this be true, and it seems probable, it is opposed to all preconceived notions and to the inferences of physiology, for it would certainly appear more probable that Nature would have endowed those branches of the human family with the most active powers of resistance, who, living in high latitudes, are habitually exposed to severe cold.

The author adduces the authority of the late Dr. Edwards, than which none higher could be quoted, to show that the power of generating heat is less in infants than in adults, and even than in old persons. This touches upon a point of moment in the management or hygiene of young children and infants, which is generally too much neglected, both by parents and by medical practitioners. We are satisfied, after extensive observation, that immense mischief results from exposing those of tender age to the rigorous winters of this country, often insufficiently clad, even among the rich, and not unfrequently with the skin totally unprotected, when older persons are shivering from the cold. It is the duty of our profession to disabuse the public mind of the existing misconceptions on this subject; to make known that all the vital powers of early existence, borrowing from their vivacity a semblance of strength which they do not possess, are intrinsically weak; that, owing to this very vivacity, action and re-action being inseparably proportional, the organic forces are speedily exhausted; that these fundamental laws of animal life can in no degree be abrogated

by habit; and that, therefore, the idea of "hardening" children by an exposure to agencies which the constitution is provided with no means to resist, has no foundation in nature. It would be out of place here to point to the enormous activity of the skin, the large amount of its circulating blood, or to its close and inseparable sympathies with the more purely vital organs of respiration and digestion; nor is it necessary to recal to mind the imminent danger of alarming or fatal congestions of the bronchial and intestinal mucous surfaces, consequent upon checks to the free action of the complex glandular and vascular apparatus lodged in the cutaneous organ.

Although the question relating to the modifications of the atmospheric pressure has but a very limited bearing on hygiene, the following summary of the effects noticed in the ascent of high mountains, by many distinguished savans, will not be devoid of interest.

"These ascents cause a great acceleration of the pulse, a disposition to nausea, a general sentiment of malaise, a lassitude which takes away all force from locomotion, and such an embarrassment of respiration as to render frequent halts indispensable, during which drowsiness comes on. According to MM. Weber and de Humboldt, this muscular lassitude depends in part on the diminished external pressure of the air weakening the support of the thigh in the ilio-femoral articulations. (M. Weber has proved that the atmospheric pressure powerfully supports the articular surfaces in contact, and so diminishes, very materially, the demands on the muscular system.) These phenomena supervene at heights which vary according to the disposition of the individual and the circumstances of the ascent. De Saussure only experienced inconvenience at 11,400 feet, whilst some of his guides, in other respects very robust men, suffered at 9,000, and some even at 5,000 feet. MM. Agassiz and Desor, who ascended the Jungfrau in 1841, did not suffer any inconvenience during a residence of several weeks at a height exceeding 8,000 feet."

A remarkable contrast has been observed in the case of the great American and Asiatic mountains: thus, an English traveller, Moorcroft, found his respiration affected only after ascending a part of the Himalayas 15,600 feet; and Von Humboldt, Boussingault and others, in the ascent of the Andes, did not experience serious inconvenience at a lower range than 17,000 or 18,000 feet. The cause of this striking difference is said to depend on the lower level of the snow-line, which, in Europe, is placed at about 8,000 feet above the sea, whilst in the Cordilleras of the Andes, it is at an altitude of 14,600 feet; but, if the common opinion be correct, according to which the urgent dyspnœa and other symptoms depend on diminished atmospheric pressure, this explanation cannot be well-founded.

The influence of stagnant water in the production of disease is immense, and renders this one of the most important subjects connected with hygiene. The author comprises under this head "all the varieties of water, more or less motionless, which may prove injurious to the health of man by the products of their evaporation—lakes, pools, marshes, salt-marshes, harbours, moats, ditches of fortifications;" and, equally important with any of the preceding, but omitted in the work before us, we may add, all the numberless accumulations in cities, towns, and even villages, which, in the form of puddles, ditches, &c., operate most injuriously. These pestilential places are not confined to the uncultivated and barbarous parts of the world; even where civilization has attained its climax, marshes cover a vast extent of the soil; thus, in France, independently of pools, which abound in many

of the departments, it is calculated that they equal 450,000 hectares. (The French hectare equals 2·471143 English acres, that is nearly two and a half acres.)

Happily for England, the progress of agriculture has, to a great extent, freed it from fens, bogs, and marshes. It is somewhat remarkable that Asia is less infested with marshes than the other parts of the globe, whilst America abounds with them.

The general characteristics of marshy districts are thus graphically sketched:—

"The physical characters of marshes vary according to climate; they also differ in appearance and depth; they have, for a common feature, the development of a certain kind of vegetation, and they further serve as a receptacle for the double products of an organic growth almost boundless in its activity, and of a putrefaction as incessant; mysterious laboratories of life and death, they are at once the cradle and the sepulchre of innumerable generations of plants and animalculæ; they present the contrast of the immobility of their stagnant waters with the agitation of the multitudinous beings which they shelter; and, in order to protect the orgies of an obscene creation, they repulse man, and, by infection and disease, make a solitude around their borders."—*Tome* I., p. 417.

In general, stagnant waters repose on an argilaceous soil, either naked or covered by a layer, variable in thickness, of vegetable soil, or of mud composed of earthy matters and organic detritus. In some particular instances, impermeability of the soil, arising from other circumstances, is the determining cause, as in the case of the Pontine Marshes, which, according to M. Lévy, arose from the impermeable volcanic tuff forming the soil of Rome and the surrounding country.

With respect to the air resting on marshes, (*malaria*,) nothing is very certainly known of its chemical qualities, nor even of its exact source. Dr. Dunglison, in his Elements of Hygiene, says, the cause of marsh poison is not known, but that it does not proceed from decomposition of vegetable matter alone, nor of animal matter alone. The late Dr. J. Johnson, whose great practical acquaintance with the subject entitles his opinion to attention, concludes that it is the product of animal and vegetable decomposition resulting from heat and moisture—a conclusion which seems to be the nearest approach to the truth. Many experimentalists have, it is affirmed, even obtained a highly putrescent organic matter from marsh air: thus, Thenard and Dupuytren, by passing it through water, found a deposit of matter, most putrescent in character; Moscati condensed the vapours of a rice-ground, and in a few days the liquid, thus obtained, formed on its surface a mucous substance with a cadaverous odour, analogous to that furnished by the condensation of the exhalations spread in the ward of the great Hôtel Dieu of Milan; lastly, M. Rigaud de l'Isle condensed, by a very simple contrivance, the vapor exhaled by the Pontine Marshes, and he obtained in this way two bottles of liquid, which, being analyzed by Vauquelin, afforded an animal matter. In some of these instances, the gaseous matter was procured from the soil and water of marshes; but Boussingault has obtained organic matter from the air of American marshes, and likewise a large quantity of hydrogen gas. M. Lévy, from whom we have quoted the larger part of the above details, concludes that, "besides the gases which are disengaged abundantly by agitating the

water of marshes (light carburetted hydrogen mixed with azote, carbonic acid, sulphuretted hydrogen, and sometimes a trace of phosphuretted hydrogen,) it is certain that an organic matter escapes by the volatilisation of stagnant waters, and mixes with their atmosphere; animal or vegetable, it is without doubt this emanation which determines the specific odour of marshes," and, may we not add, their fatal effects as regards human health.

According to the statistical researches of high authority, M. Villermé, young children succumb more readily under the influence of marshes than adults. "In comparing the mortality of children in the healthy provinces, and in the eight most marshy departments of France, the proportion is as 1,000 to 1,546. Infants below one year furnish fewer deaths than children of the ages between one and four years, doubtless, because, being kept within doors, they are less exposed to the noxious emanations. After the age of ten years, the influence of marshes is less to be feared; the danger is still less from fifteen and eighteen years up to the age of twenty-five; from thirty-five or forty years to fifty or fifty-five, the deleterious influence is more pronounced, but never so much as among young children. Old persons, either because they are more sedentary, or because they have acquired the benefit of habit, offer the greatest resistance to the marsh effluvium."

The author, referring to the French settlements in Africa, observes, "it is especially in the time of war that the malaria is fatal to the troops who perform night marches, and who are supplied with food insufficient in quantity, bad in quality, or irregularly distributed. Our military surgeons have acquired an experience of this fact in the campaigns of the Empire, and recently, in some localities of Algeria, (Bona, &c.,) where disease decimates our soldiers. Thanks to the sanatory precautions taken in Africa, and to a good organization of the administrative service, the mortality has diminished there, as it will diminish in all marshy countries by similar ameliorations, of which the most essential consists in a substantial and tonic diet."—*L. c.*, p 449.) Although, as a preventative generous food is doubtless most beneficial, we entirely dissent from the position just quoted; for it is evident that the most urgent ameliorations required are those connected with drainage, &c., by which means the focus of the mischief is eradicated; all other precautions are but secondary in their operation.

The article on the Nature of the Soil contains many interesting details, but we have only space for a few extracts. The principal circumstances which bear upon this subject are—1. The mode and degree of exposure, whether to the North or South, &c.; 2. The meteorological phenomena; 3. The geological structure, comprising the constitution of the strata, the form of the surface, whether undulated or plain, and so forth; 4. The relations between the surface of the soil and that of the waters, as rivers, canals, pools, ports, seas, &c.; 4. The existence of forests. M. Lévy remarks that, "the relation of the surface of the earth to that of the waters is an important element of topography; thus, it is the disproportion of the evaporating surface of water which impresses on so many localities a character of permanent humidity. Venice with its lagunes; Holland, furrowed by the Rhine, the Scheldt, the Meuse, the Yssel, the Waal, &c.; Strasburgh, traversed by canals, surrounded by ditches, (of fortification,) by

swamps, by water-meadows, are so many examples of this influence. The mean annual quantity of rain which falls in any locality being known, it becomes important to determine the mode in which it is carried off according to the structure and the configuration of the soil; the amount of fall, the divisions of the streams; the mode of embankment; the system of irrigation established by Nature or by art." The influence of forests on the nature of the soil is, it is well known, to retain the moisture by retarding evaporation; thus, it is stated that Lower Egypt, enriched by the plantation of 20,000,000 of trees, which it owes to Mehemet Ali, receives more pluvial water than Upper Egypt deprived of woods. A contrary effect has followed, in many districts, the destruction of the forests which Spain formerly possessed, owing to the care of the Moors.

The author has, in the following remarks, embodied the results of the best observations on that difficult subject, *Climate*. After noticing the system of the ancient geographers, according to which the space from the Equator to the Pole was divided into thirty climates, and that of the moderns, who partition the same surface into 90°, M. Lévy observes, "the modern division, in multiplying the parallels, has in the same degree increased, for those observers who have applied this arrangement to hygiene, the number of climates. But the influences which in their ensemble characterise a climate, are not distributed in the different regions of the globe, with such rigid regularity, and cannot be reduced to a mathematical classification; neither the meteorological phenomena, nor the conditions of the soil, are identical in all the countries placed on the same parallel of latitude. If, indeed, latitude only were consulted, regions entirely differing from each other as regards their physical characters and the influence they exert on organized beings, would be embraced in the same system of climate; but this word, climate, implies the idea of uniformity, or at least of similarity in the external conditions, so that it is impossible to determine the various climates by purely geographical lines."—(*L. c.*, p. 483.) The celebrated Humboldt was the first to substitute for the inflexible parallels of the geographer, a series of isothermal lines, which, resting on the circumstance of an equal mean annual quantity of heat being evolved, and circumscribing the several countries which agree in this respect, describe curves more or less deeply inflected, only preserving their parallelism in the torrid zone. It is not necessary to dwell on the various modifying agencies, which cause the isothermal lines thus to deviate from the parallels of latitude; we need only point out that the most influential of these circumstances are the relative distribution of sea and land, the presence or absence of high mountain ranges, and of extensive forests. Some of the more striking results of these controlling causes are, that Europe enjoys a mean temperature more marked than that of Central Asia and of America; that the northern hemisphere receives more heat than the southern; and that, in the same hemisphere, the annual heat diminishes rapidly from West to East in the interior, whilst towards the coast the reverse applies.

The distribution of heat exhibits more striking differences according to the seasons: thus, the latitude being equal, America has more ardent Summers, more rigorous Winters, and more variable intermediate seasons than Asia and Europe; again, in consequence of the more equal temperature of the waters of the ocean, the climate of islands and coasts

differs essentially from that of the interior of continents, the former being characterized by mild winters and temperate summers. Besides all these more extensive deviations, there are, in all countries, a vast number of minor causes affecting *localities*, a correct knowledge of which, as Sir James Clark has so clearly shown, is often of the first consequence in considering the influence of climate on health.

In fine, agreeing with M. Lévy that, of all the causes which have a tendency to modify climates, the variations of temperature are the most powerful, we may, with this writer, quote the words of Humboldt, who by "climate" understands "all the modifications of the atmosphere by which the senses are distinctly affected, such as temperature, humidity, the variations of the atmospheric pressure, the tranquillity or commotion of the air, the state of electric tension, the purity of the atmosphere or its mixture with noxious emanations; and, lastly, the degree of habitual transparency, that serenity of the sky so important by the influence it exercises, not only upon the radiation of the earth, upon the development of the organic tissues in vegetables and the ripening of fruits, but also upon the ensemble of the impressions, which, in different zones, are excited by the senses in the soul."

Applied in this comprehensive sense, which is the only true one, it is apparent that, under the term 'climate,' many of the most potential external agents affecting the health and lives of human beings, are comprised. M. Lévy enters into a consideration of the whole subject, but our limits will allow us only to notice one or two of the more interesting points. Among these is that question so often raised:—"is phthisis pulmonalis more rare in hot than in other climates?" After quoting the valuable statistics of the English army, published under the authority of Government by Major Tulloch, and other documents, the author observes, "these numerical data are far from confirming the opinion which attributes to hot climates a favourable influence in respect to the tubercular diathesis; they show that phthisis exerts its devastating influence with an intensity almost equal in the most different parts of the globe." The difficulty of obtaining a definite solution of the question is shown, and the necessity of taking into consideration many other circumstances besides climate, especially the mode of life, is particularly insisted on. The following extract embraces some details of interest, although it would appear that the ravages of consumption are in some instances underrated. It may be premised that, although there are no sufficient data for estimating the number of persons labouring under phthisis and other complaints in this country, yet, an approximative result may be obtained by ascertaining the proportional number of deaths: from the report of the Registrar-General it appears, for example, that, in the year 1841, there died in the whole of England, 343,847 persons, and of these, 59,592 were cut off by consumption, or somewhat less than one in six; whilst, in London, of 45,507 deaths, 7,326, or rather more than one in six, died from phthisis.

"According to M. Journée, in Leghorn, there is one phthisical patient to forty-four attacked by other diseases; in Florence, one to 28; in Rome, one to 20; in Naples, one to 6. The last calculation probably exceeds the truth, for, according to M. de Rienzi, notwithstanding the influx of invalids, which must, in that city, raise the number of those suffering from tubercle, the proportion of

consumptive to other patients is as 1 to 12; an estimate which indicates the superiority of Naples as a place of residence over Paris, where, according to this writer, one phthisical person is met with in four cases of sickness. Lastly, M. Cas. Broussais, who has collected these and other documents in a memoir read before the Academy of Medicine, has made an abstract of the numerical results obtained in the several branches of the medical department in Africa. The medical statistics of fourteen principal stations in the provinces of Algiers, Bona, Oran and Constantine, give one death from phthisis in one hundred deaths, and one case of phthisis in 561 cases of sickness; whilst, according to M. Benoiston, whose researches extend over a period of 12 years, and which are confirmed by those made by M. C. Broussais at the military hospital of Val-de-Grâce, it is proved that, in the French army, one death in five arises from phthisis."

In remarking on these calculations, the author points out two objections which have not been sufficiently considered: firstly, that the soldiers sent to Africa are picked men, the infirm and unhealthy being left in the depôts in France; secondly, that dysentery and destructive fevers carry off prematurely many individuals, who, at a later period, might have succumbed under pulmonary consumption, so that, one class of disease being substituted for another, the question as regards the protection against phthisis remained undecided.—(T. I., p. 498.)

Intimately connected with the subject above noticed, is the all-important inquiry, how far benefit may be anticipated in phthisical cases from a milder climate. Upon this point M. Lévy observes:—

"Physicians who have practised in hot climates have, for the most part, confirmed the advantages to be derived from them in the case of persons either affected with incipient phthisis, or simply predisposed to this complaint. This important fact has been affirmed by Johnson and Annesley, in the tropical possessions of England; by Twining in Bengal; S gond in Cayenne; Levacher in the French West Indies; Thevenot in Senegal; Goudlay at Madeira; Raymond Faure in Greece; by many of our military physicians in Algiers, &c. Unanimity of opinion like this ought not to be neglected, although it wants the sanction of numerical researches; but we must take care that an advantage, which depends essentially on topographical conditions, is not attributed to entire regions, merely because they belong to the category of hot climates. It is owing to the decisive influence of localities having been mistaken, that so many phthisical patients have submitted to the fatigue of useless migrations, and have gone to seek death where they hoped to find recovery, or at least a prolongation of their days. If the journey into Italy rarely succeeds where the lungs are compromised, it is because Italy is an aggregation of localities which differ singularly by their atmospheric phenomena; every thing depends on making a judicious choice of residence. A short distance, according to the observation of Hippocrates, often changes the whole merit of localities: Nice does not justify the prestige which makes it so much in vogue; Florence ought to be avoided by the consumptive: whilst at some leagues from thence, Pisa offers a mild temperature without sudden vicissitudes; Genoa and Naples are injurious; the South of France affords but few sheltered retreats, and its Mediterranean coast is to be feared from the frequency of the 'mistral.'"

These remarks, although judicious, cannot claim much originality, for they have been entirely anticipated in the valuable work of Sir James Clark, on the Influence of Climate; indeed, on turning to the leaves of that treatise, it appears to us that our author must have derived all the materials contained in the last part of the above extract from the section

headed "Italy" and "Nice." However this may be, the fact of important and influential modifications arising from local causes, must never be overlooked by the practitioner who is consulted in these cases respecting a choice of residence.

A question of much physiological and practical interest, especially in a highly civilized manufacturing country like England, relates to the influence of artificial light on the organ of vision. The great difference between the natural solar light and that of lamps and candles, is, that the one is uniformly diffused and constant, whilst the other is more or less concentrated and varying. "What," asks M. Lévy, "is the action of artificial light upon the visual apparatus? It irritates and fatigues it more than solar light. The watchings and working at night upon very small objects, powerfully contribute to the production of inflammatory diseases of the internal membranes of the eye, to weakness of sight (amblyopia) and to paralysis of the optic nerve (amaurosis.) * * * * * * * * The intensity of the effects produced by artificial light depends especially on the direct projection of its rays upon the eye, whilst the occupations of the day are carried on in a diffused light. The experience of oculists distinctly proves that an uniform and tranquil light is best adapted to the eye, and that evil consequences result from the agitation of flames; at every oscillation, the eye is forced to alter its focus, and thus fatigue is induced; and in addition the retina, differently affected at each instant, has its powers exhausted." "If the light from a lamp exceeds a certain intensity, the latter should be further removed from the eye; and, as to gas-light, it is too powerful for work. But if too brilliant a light is injurious to the eye, the insufficiency of illumination fatigues the organ by the tension it excites, and by repetition leads to amblyopia and amaurosis." (2. p. 372-374.) It is stated that the dress-makers suffer severely in Paris, in consequence of being compelled to work in a weak light; in London the same class are similarly affected by protracted labour in brilliant gas-light. In no case, however, are amaurotic diseases more frequently excited than among the mechanics who make stockings, and who are compelled from the lowness of wages to work at night, when they use a strong light produced by a large globe filled with water, which, by collecting and condensing the light, acts as a lens.

We shall conclude our notice of the work before us, by alluding to a subject which is of primary consequence to human health, and which, in an essential manner, is deserving of the deepest attention of our professional brethren: we refer to the construction and ventilation of public edifices. The author remarks, as regards the supply of air (aëration), that "it is proper to distinguish those edifices, such as the cells of prisons, or the wards of a hospital, where the séjour is permanent, or at all events exceeds the duration of a day, from those where the séjour is very limited and does not exceed a night, such as barracks, dormitories of colleges, &c. Buildings constantly inhabited imperatively require the aid of ventilation; it is in fact almost impossible to give them such a capacity as would allow of ventilating means being dispensed with, for, as M. Leblanc judiciously observes, capacity will only delay the moment when ventilation will become necessary."—*L. c.*, p. 566.

In the construction of hospitals, a multitude of precautions and rules

should be observed, which are, however, frequently violated, but never, as experience teaches, with impunity. In replying to a plan for a hospital submitted to its judgment, the Academy of Sciences "condemned both the circular and the square form, on account of the proximity of the windows towards the interior, allowing the air of one ward to enter into another, and it pronounced in favour of a building in the form of a simple parallelogram, directed from East to West." "As to the number of stories, Hunter, Coste, Pastoret and Villermé have ascertained that, in most hospitals with several stories, the mortality is, cæteris paribus, greater in the upper wards than in the others. The number of patients has a powerful influence on the general salubrity; and it is indisputable that the mortality is much greater in the large than in the small hospitals." It must be regarded as a fortunate circumstance, that in England the number of patients is, comparatively with the great hospitals on the Continent, limited, scarcely ever, in the largest of those institutions in London, exceeding five hundred, and more usually ranging from one to two hundred, whilst in Paris these numbers may be found congregated in a single ward; in La Charité, for instance, the wards on the ground-floor and on the first story, contain each from 219 to 225 beds; and, if our memory serves us, some of the wards of the Hôtel Dieu exceed those numbers. M. Lévy truly observes, that "vast wards, well provided with windows, long, lofty or high in the ceiling, please the eye, and are, it is true, much better than narrow and low wards; but the great number of patients which they contain, renders them always more dangerous than small wards which offer the same conditions of aeration and light. Whatever may be the amount of air assigned to each patient, injurious emanations accumulate, and the risk of contagion and infection is in the direct ratio of the population of the beds." Our own experience, resting on an extended examination of the hospitals of this country and on the Continent, entirely confirms the truth of these statements. Small wards, containing, as M. Trousseau advises, not more than twelve patients and even a smaller number, as four or six, combine so many advantages, that the happiest results would flow from their universal adoption: wards of these moderate dimensions allow of the ready renewal of the air, a point, the importance of which it is impossible to exaggerate, but which it may safely be affirmed, has never yet been accomplished in large and crowded wards; they admit of the complete classification of cases; and they tend to the bodily and mental comfort of the patients, by limiting the spectators of those fearful scenes of suffering and death which are so frequently recurring in all large hospitals. M. Lévy's beau ideal, as to construction, and which is said to be realized at the agricultural colony and penitentiary of Mettray, near Tours, is thus sketched: "every hospital should consist of a series of detached buildings (*pavillons*) provided with a ground-floor raised on arches and of a first story, divided into two wards, each of 40 beds, and separated by a common vestibule; each building having its offices, a warming apparatus, and a garden or enclosure; lastly, between two of these 'pavillons,' a glass gallery should be provided for the service of the hospital, and for a winter promenade."—(p. 581.) He further recommends that the floor should consist of tiles or bricks, rather than of flags or boards, which are liable to become impregnated with

liquids; that the windows facing North and South, and reaching to the ceiling, should be placed opposite each other, and occupy at least one-third of the whole length of the ward.

These details relating to construction are by no means superfluous, for this is a subject to which the attention of medical men, the only competent judges in such a matter, has been but little directed, at all events in this country. Many of the obvious precautions which are noticed in the foregoing extracts, have been to our personal knowledge neglected both in the metropolitan and provincial hospitals; and that too in cases where the defects were neither dependent on want of funds nor want of space, though of course both these causes, have often, in other instances, led to defective construction. In some of the largest of the London hospitals, the wards are placed opposite to each other, forming quadrangles, the worst possible form, next to the circular, for the free admission of air; in others among them, there are squares within squares, by which the evil of a limited circulation of air is exasperated; in many, there are windows only on one side of the ward, a most serious defect in the existing absence of efficient ventilation; whilst in others, even the palpable provision of making the windows reach up to the ceiling is neglected.

The main and essential circumstances connected with the hygiene of hospitals, workhouses, and prisons are, however, those involving the mode of ventilation. Happily the general progress of intelligence, responding to the appeals of philanthropy and benevolence, has wrought great and beneficial ameliorations in the internal economy of these establishments: but it must be confessed that these improvements have resulted rather from the promotion of cleanliness, from the prevention of overcrowding, and from the adoption of measures securing the general comforts of the inmates, than from the application of scientific principles in the removal of the noxious atmosphere invariably generated where numbers of human beings are congregated together. At the time when we write, there are few, if any, of those institutions which are more especially committed to the care of our profession, namely hospitals, in which it can be affirmed that an effective system of ventilation has been provided. In most cases, this indispensable sanatory condition is trusted, as in private houses, to the insufficient and uncertain method of opening windows and making large open fires; contrivances which, although they may suffice in the case of a single family, can never be applied, except as adjuncts, with any hope of success in the crowded apartments of the sick and diseased. Some attempts have indeed been made in London and elsewhere to secure a more certain supply of fresh air, but being based on unscientific principles, they have not, in general, been attended with satisfactory results. The plan more usually adopted has been as follows: fresh, cold air is introduced by ducts or passages opening into the wards; the impure air is carried off by pipes or flues commencing at the ceiling of the ward and leading out through the roof; and, in some cases, the fresh air, previously to being distributed, is warmed. The general defect is that no certain means are provided for drawing off the foul air *at all times and under all circumstances;* for it should be well understood that the mere insertion of passages leading *directly* into the external atmosphere, offers no

security that the stratum of impure air near the ceiling will escape, the question of removal being essentially dependent, under such circumstances, on the relative density of the atmosphere within and of that without. The *only effectual method of withdrawing the contaminated air is by rarefaction*, a point not difficult of attainment in large establishments at all seasons of the year, and which can be accomplished in various ways. But, if a large and constant supply of pure air of a proper temperature be provided, and this can be readily effected by the air-pump invented by Dr. Arnott, less precautions will suffice for the removal of the carbonic acid and other noxious gases generated in hospitals, prisons, &c.; inasmuch as it is apparent that fresh air can only be driven into an apartment by displacing an equal volume of the gaseous fluids contained in it.

It would not be doing justice to M. Lévy, if we did not recommend his treatise to the careful notice of our readers, feeling assured that it will be found, and especially at the present time, to be a valuable record of the important and diversified facts bearing on the preservation of health, and on the prevention of disease.

A DICTIONARY OF PRACTICAL MEDICINE. Part X. By *James Copland*, M.D., F.R.S. 8vo. pp. 144. 1845.

As we intend reserving any remarks we may have to make upon the mode in which the author of this gigantic undertaking has fulfilled his task, until we have the whole of the work before us, we should have passed the present Part by with the simple remark, that it equals its predecessors in the amount of valuable matter condensed into a small compass, and exceeds them in the number of accompanying original observations; but that we find some of the remarks upon the pathology of Paralysis, and the nature of Cholera, of too interesting a character to be thus summarily dismissed. To these then we will briefly refer.

OF CERTAIN POINTS IN THE PATHOLOGY OF PARALYSIS.

Palsy may be induced by whatever interferes with the generation or transmission of the nervous power. Thus, when the grey substance of the brain and spinal chord, which is the portion chiefly instrumental in the productions of the peculiar functions of these organs, becomes diseased, palsy is found to prevail in proportion to the extent in which it does so, as is seen especially in cases of general paralysis complicating insanity. But the nervous power may be duly generated, and yet its transmission through the frame in part impeded, whether by injury, disease, or compression; while, in other cases, due evolution and transmission are alike prevented by disease which implicates both grey and white substances.

Crossed Paralysis.—Dr. Copland agrees with Dr. Bennett in doubting the accuracy of the observations which have been adduced to show the

occasional occurrence of paralysis on the same side as the lesions in the brain. Twenty-one such cases, one-half of which will not bear scrutiny, only are recorded.

"Numerous instances have occurred of abscesses, softening, and other alterations of the brain having been found, but in which no paralysis had been observed during life; and a still greater number are on record, in which there was well-marked paralysis, but no appreciable lesion of structure after death. It is by no means improbable, therefore, as paralysis may be induced without leaving any traces, that, in those few cases where the palsy and lesion in the brain were on the same side, it was really caused by undetected changes in the opposite hemisphere; and, as is sometimes the case, that the disease found in the hemisphere of the paralysed side had not occasioned the loss of motion."

Lesions in the spinal marrow, however produce a direct effect. Dr. Copland is disposed to view the extensive changes in this organ which are sometimes found at the autopsy (such amounting even to a complete destruction of the chord, the patient still retaining the power of voluntary motion to the last) as having frequently commenced shortly before death, and been completed subsequently to that event. The involuntary or automatic movements produced by an inflamed spinal chord may be mistaken for voluntary ones, and reflected motions may occur where all means of transmitting ordinary volition is destroyed.

The condition of the *cerebro-spinal fluid* must not be lost sight of in estimating the effects of lesions in producing paralysis. Its protective agency in the spinal canal, where it is abundant, has been shewn by Magendie and Todd; and its quantity doubtless varies with the vascular condition of the nervous matter and membranes.

"It may reasonably be concluded that, when these structures, and the blood supplying them, do not sufficiently fill the unyielding cases of the spine and the brain, the fluid interposed between the arachnoid and pia-mater will supply the defect, and prevent the existence of any vacuum; and that, on the other hand, when the states of these centres and of the circulation in them are such as give rise to much fulness, the quantity of this fluid will be diminished. Anæmia will thus be attended by an increase of the cerebro-spinal fluid, and vascular turgescence by a diminution of it; the included masses being thereby preserved from much diminution of pressure in the one case, and from much increase of it in the other. Thus, also, in cases of atrophy, partial or general, of the brain or spinal chord, the quantity of this fluid is increased, showing the importance of it to the functions of these parts, whilst in cases of hypertrophy it is diminished or almost wanting.

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"From what I have now adduced, it may be inferred that the effects often imputed to the abundance of this fluid, particularly in the spinal canal, by several pathologists, when detailing the morbid appearances after death from diseases of the nervous system, have been imputed to a wrong source: that the serous effusion in these cases, as I have elsewhere argued, is neither the cause of pressure upon, or of induration of, the nervous centres, nor the source of the palsy sometimes observed, but that it is a result of those changes of the nervous structure, and of the local circulation with which it is found associated in connection with, or aided by, the unyielding state of the surrounding parts."

Influence of the different columns of the spinal medulla and of the roots of the spinal nerves upon the sensitive and motive powers.—The exclusive

devotion of the posterior columns of the chord to the conveyance of sensation, is by no means so satisfactorily made out, as is that of the anterior columns for the transmission of volition. Extensive lesions of these posterior columns recorded by several authors, have either occurred subsequently to death, or prove that sensations may be conveyed by other channels, independently of these columns. The sympathetic system seems to be this other channel.

"When we recollect that communicating branches run between the ganglionated or posterior roots of the nerves and the great sympathetic on each side; that ganglial nerves may be traced in their course from the sympathetic into the spinal ganglia and chord on the one hand, and from the latter into the sympathetic and ganglia on the other, we cannot but infer, not only that sensation may be transmitted, or more correctly, that impressions on the surface may be conveyed to the brain so as to excite consciousness, by a different route than that of the spinal chord, especially under circumstances of gradual change in the chord, rendering it ultimately incapable of discharging this function, and that this other route is through the sympathetic nerve, and their communications with the posterior roots of the nerves and spinal medulla. * * * The above considerations may serve as reasons wherefore sensation remains unimpaired, or but little affected, in very many cases where the chord is diseased or injured so as to be incapable of transmitting the impulse of volition, particularly when the lesion is high in the cord, and when it has advanced slowly or gradually. They may also account for the rare occurrence of entire loss of sensation in any form of palsy of motion."

Congestion of the venous sinuses seated between the theca of the chord and the bodies of the vertebræ.—Dr. Copland observes, that the pathological relations of congestion and obstruction by coagula of the sinuses have been neglected. Causes producing defective innervation or vascular determination to the chord, induce congestion of the sinuses, which, in its simplest state, produces pain or weakness of the back and lower extremities, and sometimes incomplete palsy of motion in the latter; and, when it is variously associated with pain, may be mistaken for rheumatism, neuralgia, or gout. Continued congestion eventually produces a distension of the capillaries and serous effusion, which may induce pressure on the roots of the nerves and consequent paralysis.

"Congestion of the spinal sinuses, with more or less of the consequences now mentioned, is a frequent attendant on *fevers*, particularly the more adynamic and congestive forms, occasioning not merely pains and weakness of the back and limbs, and incomplete palsy of motion of the lower extremities, but also more or less affection of the urinary organs. Many of the cases described as spinal irritation, of hysterical neuralgia, of uterine irritation, &c., actually are instances of congestion of the spinal sinuses, occasioning remote or sympathetic phenomena in addition to those which are more strictly local. These are often removed, or partially relieved, for a time, by the natural recurrence of the catamenia; but, when more extensive or severe, or when associated with suppression of this discharge, they sometimes lapse into paraplegia or partial palsy, especially when neglected or injudiciously treated, owing to an increase of the congestion or of its consequences."

Mechanism and Functions of the Spinal Cord.—Dr. Copland states that, in the articles Cholera, Chorea, and Convulsions, he explained the symp-

toms of these diseases as arising from reflex actions excited in the voluntary muscles by irritations transmitted to the roots of the spinal nerves and spinal chord. Dr. M. Hall has subsequently referred these and analogous phenomena to a special organization of the spinal chord. Of this explanation, as applied to the convulsive movements excitable in the palsied, Dr. C. thus observes:—

"Such being the mechanism of ordinary sensation and motion, according to the recent researches of Stilling, Van Deen, Budge, and others, it can be no longer difficult to account for those involuntary movements which are produced in a paralysed limb when the surface of it is irritated, pinched, or tickled, and which have been termed by Dr. M. Hall reflex actions, depending, according to him, upon a reflex function of the spinal chord, which function he refers to a distinct mechanism of the chord. It has already been contended by the author that no such mechanism exists, and that these actions are sympathetic, and result from the conformation of this part of the nervous system, transverse fibrils, passing, as shown by the anatomists just referred to, directly from the posterior to the anterior grey substance, to convey impressions from the sensitive fibrils, and to excite the roots of the motor nerves. That no appropriate and peculiar structure exists in the chord for the purpose of performing these sympathetic or reflex movements, beyond what has now been noticed, is the opinion not only of the author, but also of the writers already mentioned, as well as of many others who have investigated the subject."

Relaxation of the Sphincters.—This is not of so general occurrence as usually believed. They "are not so frequently relaxed as they are imperfectly influenced by the will, or are not at all affected by it." The tonicity of these muscles has been erroneously supposed to be dependent upon the spinal chord to the neglect of the ganglial system, which is its real regulator.

"Pathological evidence, indeed, clearly leads to these inferences, 1st, that the power of the sphincters is attributable chiefly to the organic nervous system, but that it is increased by violition exerted through the medium of the spinal nerves, especially in circumstances requiring such increase, as when the disposition to the action of the bowels or the bladder has to be resisted; and 2d, that it is chiefly this latter influence, or that which is exerted through the spinal chord, that is either lost or impaired, in cases where the voluntary contractions of the sphincters are insufficient to prevent the passage of the excretions when the patient wishes to retain them. It is not, therefore, to be inferred that, where there is insufficient control over the evacuations, the sphincters are either relaxed or materially deficient in power; but that they are only insufficiently influenced by volition, relatively to the power which overcomes their natural tonicity."

PESTILENCE (CHOLERIC.)

In the article thus headed, we are furnished with an able and minute description of the disease commonly, but erroneously, termed *Epidemic* or *Indian Cholera*. The conclusions which Dr. Copland has arrived at are entitled to the gravest consideration, formed, as they have been, from ample opportunities of observing the disease during its visitation, and an elaborate examination of numerous reports and documents placed at his disposal by the East India Company. The devastating nature, and wide-spread in-

fluence of the scourge entitle it to be placed, together with the Plague and Yellow Fever, in the category of Pestilential Diseases; and Dr. Copland first refers to the several erroneous views which extensively prevail respecting the nature of the malady. 1st. It has been very generally supposed that this disease is merely an epidemic form of the common spasmodic cholera of warm climates. Dr. C. had had opportunities of treating the spasmodic cholera in insalubrious climates, and, so long ago as 1822, protested against the two diseases being confounded together. In India, too, where spasmodic cholera was well known, when this disease first appeared, it was looked upon as a new, unheard-of, pestilence. Certain by no means essential symptoms, the purging, vomiting, and spasms, have been mistakingly set down as characteristic ones. 2ndly. An opinion has been erroneously held and mischievously propagated in this and other countries, that the disease did not exhibit proofs of contagion in the East. 3rdly. It has been, and is very generally, believed that the disease is produced by some unknown condition of the air. It would be difficult to explain its uninterrupted duration for near thirty years by any such supposition, although there can be no doubt it may become greatly aggravated by the prevalence of certain conditions of the atmosphere.

"We know that some diseases are simply infectious without being epidemic, that others are both infectious and epidemic, and others are epidemic and only contingently infectious. But the author believes that, like eruptive and typhoid fevers, this distemper is infectious, is not essentially epidemic, although it will, during favourable states of the atmosphere, &c., assume epidemic characters, and be modified accordingly. An attentive review of the various modifications of the malady in India, throughout Asia, in Europe, and in America, seems to justify this view, and to confirm the conclusion as to its being a specific disease, arising from a specific cause, but promoted and disseminated more widely by the aid of various concurrent causes, amongst which, epidemic or unhealthy constitutions of the air; dirty, crowded, and close apartments; and crowding of the sick, are the most prominent."

After detailing the various diagnostic marks by which this disease is distinguished from *cholera* properly so called, Dr. Copland observes:—

"After attentively considering its phenomena and nature, I would conclude, 1st. That this malady, as respects the causes which occasion it, and as regards the pathological states which constitute its various grades or stages of intensity, is quite distinct from all the forms of cholera, whether the common *bilious* variety, or the more severe form, usually denominated *spasmodic*, the *mort-de-chien*, &c.; and that, therefore, the name cholera should be discarded from all scientific descriptions of it. 2ndly. That the accounts which we possess of the epidemics and pestilences which have ravaged various countries in former times, do not furnish us with the history of any disease which may be considered as identical in its nature with this pestilence; and that it must, owing to this circumstance, and to the uniformity of its characteristic phenomena, be viewed as being of modern origin and *sui generis*. As it is important that the name of a disease should not be such as may risk its being confounded with another, different from it in nature, symptoms, and termination, so I consider that some other name than that at present applied to it should be given it. As to the particular appellation that may be employed, I conceive that one pointing to its chief pathological states and its prominent tendencies, ought to be preferred. The intense influence of its exciting causes upon all the respiratory actions and functions, as well as upon the actions of the heart and state of the pulse, and its marked tendency to pro-

pagate itself, and to terminate fatally, have induced me to apply to it the name of *Asphyxia pestilentia*, or *pestilential asphyxia*."

Infection.—Dr. Copland observes, that he commenced his investigation of the documents transmitted from India relative to the cholera, in a frame of mind quite unbiassed, and arrived at the conclusion, "that the disbelief of infection was not general in India,—that the productions which issued from the Medical Board very strongly favoured, and indeed proved, the existence of this property,—that two out of the three actually insisted upon the activity of its influence,—and that, therefore, the dangerous opinion, so very generally propagated, and even acted upon, both in this and foreign countries, that the Authorities in India did not consider the disease infectious, is entirely without foundation in truth."

Numerous extracts are furnished, in which facts are stated, even by non-contagionists, which prove the infectious nature of the disease. The question is gone into at length also in reference to the subsequent progress of the disease in Europe, when its nature and manifestations continued precisely the same, however much it may have varied in intensity. The conclusion irresistibly arrived at is, that the disease has never shewn itself "without the presence of a certain leaven, or morbific matter, which, emanating from the bodies of the affected, and floating in the air, is respired by those about to be attacked." Like other diseases, avowedly contagious, it spared many exposed to its influence, its attack being determined by various predisposing, concomitant, and determining causes. The arguments of the non-contagionists are examined at length, on account of the immense practical consequences, as regards prevention of extension, which must necessarily arise from the decision arrived at, and because the same arguments are applicable to the question of the contagion of the plague and yellow fever. From his observation of the disease as it occurred in our own country, Dr. Copland draws the following conclusions:—1. The distemper was manifestly infectious. 2. It was not propagated by contact, but by an effluvium or miasm emanating from the person of the diseased, and inspired by the bye-stander, who became liable to be affected in proportion to his predisposition. 3. This emanation was often manifest to the senses of smell and even of taste, and became attached to articles of clothing, &c., so as to be capable of producing the disease long afterwards. 4. In this way, the disease was frequently propagated by the clothes of the physician and others, who did not themselves become affected. 5. Placing the hand in contact of the surface of a person suffering under the cold stage often produced a peculiar tingling sensation; but did not cause infection, if breathing the contaminated air were avoided. 6. When such air was breathed for the first time by a healthy person, a morbid sensation was often referred to the chest and epigastrium, giving rise to frequent and forcible inspiration. Such impression and its consequences usually disappeared if recourse was had to stimuli and full living, but were followed by other grades of the disease under the influence of various depressing agents. 7. Subsequent exposure to infected air, unless this effluvium were more concentrated, usually produced less manifest morbid impressions. 8. The operation of the effluvium was violent in proportion to its concentration, and the debility

and degree of predisposition of the person respiring it. 9. "There is no evidence to account for the generation of the choleric poison in the first instance, and there is as little of its reproduction *de novo*, on subsequent occasions. It is also impossible to form a correct idea of the period during which the infectious miasm or seminium may be retained by clothes closely shut up from the air, or by the dead and buried body, and be still capable of affecting the healthy."

We forbear expressing, at the present time, any opinion of the justness of Dr. Copland's conclusions, intending, at no distant period, to bring the whole subject of infection and quarantine under the notice of our readers. In the mean time, however, we have thought it right to re-produce the opinions of so deservedly high an authority upon a question which is so anxiously occupying the attention of the various European governments. Dr. Copland is strongly of opinion that, to the neglect of precautionary measures on the appearance of this fatal disease in India, is due its extensive prevalence over so large a portion of the globe.

Although the extract is rather a long one, we must find space for the following able summary.

"I conclude this part of the inquiry by stating the inferences which may be drawn from an extensive view of what is known of this pestilence, as it has appeared in Asia and in Europe, and from intimate observation of its phenomena, as they lead to various considerations calculated to arrest its progress and to remedy it, when an attack has not proceeded too far in the destructive processes in which it has been shown to terminate. A. The pestilential cholera seems to have been propagated by an animal miasm or effluvium of a peculiar kind, emanating from the bodies of the affected; and this effluvium being inhaled with the air into the lungs, paralyses these organs, and acts as a poison on the class of nerves which supplies the respiratory, the assimilating, the circulating and secreting viscera, vitiating also the whole mass of blood, and thereby occasioning a specific disease, which in its turn gives rise to an effluvium, similar to that in which itself originated; which, also, in like manner, perpetuates its kind, under the favorable circumstances of predisposition, aerial vicissitudes, &c., and thus a specific form of disease is propagated far and wide, as long as predisposing, concurrent, and determining causes favour its propagation. B. The morbid impression of this effluvium or poison upon the nerves of organic life, and probably the effects of its introduction into the current of the circulation, are of a sedative kind, rapidly destroying the vital energy of the former, and vitiating the latter, and thereby giving rise to the characteristic phenomena of the malady. C. The impression of the effluvium on the organic class of nerves, and the vitiated state of the blood, may be viewed as the proximate cause, not only of the disturbance evinced by the respiratory, the secreting, the assimilating, and the circulating functions, but also of the morbid actions of the stomach and bowels, and the copious serous discharges from these organs, as well as of the muscular spasms, the sinking of all the vital and animal powers, of the shrunk and collapsed state of the surface of the body, of the black, thick state of the blood, and of the rapid depression of the animal temperature. D. The states of the perspiration and skin, and the discharge of the serous portion of the blood by the stomach and bowels, imparting the peculiar appearance of the evacuations, proceed from the alteration primarily produced in the vitality of the frame, and in the condition of the blood; and it is chiefly through the medium of the cutaneous surface, of the liver, of the kidneys, and of the mucous membranes, assisted, perhaps, also by the other secreting viscera, that the morbid change of the blood is remedied, and impurities removed from it. E. The advanced stages, or the consecutive, or febrile symptoms of the disease, whether those chiefly depending upon the state

of the nervous functions, or of the circulation within the brain, or proceeding from the condition of the abdominal viscera, arise partly from the shock received by, and the depression of, the vital energy of the frame in the early stage, partly from the congested condition of the large veins and important viscera, and partly if not chiefly, from the alterations which had taken place in the blood during the early stages of the malady. F. The effluvium or seminium, which propagates the distemper, is generated in the progress of the changes produced in the blood, and is emanated or discharged from the mucous surfaces of the lungs and digestive canal, and from the cutaneous surface, along with their respective exhalations and excretions; and this seminium, by contaminating the surrounding air, or woollen cloths and animal products, capable of attracting and retaining for awhile animal effluvium, affects those of the healthy who are predisposed, either constitutionally, or by antecedent, concomitant, or determining influences, or on whom this efficient agent acts in an intense or concentrated form, or is aided by accessory or concurrent causes."

ON THE ANALYSIS OF THE BLOOD AND URINE IN HEALTH AND DISEASE, AND THE TREATMENT OF URINARY DISEASES. By *G. Owen Rees*, M. D., F. R. S., &c. London, Longman & Co. 1845.

IN estimating the merits of a work which professes to treat upon any department of Organic Chemistry, it is well to bear in mind the different objects to which that science may be made subservient, and to endeavour to ascertain with what especial view it has been cultivated by the author before us, and what is the nature of the information which he designs to convey to others. Now we hold it to be sufficiently evident, both from the statements made in the prefaces and from the contents of the book itself, that it was never Dr. Rees' intention to push his analytical investigations to an extreme point of minuteness in detail, or to trace, except generally, the sources or characters of the various proximate principles which come under his notice. It appears, if possible, still farther from his purpose to enter upon the wide field of ultimate analysis, which we think would have been both unnecessary and unprofitable. He seems rather to have wished to exhibit to others the simplicity of the processes by which a considerable, if not a perfect, practical knowledge of the constitution of the important fluids of which he treats may be obtained, a knowledge which, in its application to individual cases, may assist diagnosis and guide treatment, and may, at least with some, be a starting point from which they may be tempted to press onward in the same course, and to take their parts in the more direct advancement of animal chemistry as concerned with vital actions either during health or under the influence of disease. In proof of what we are saying, in the preface to the former edition reprinted in the present, we find the author stating it to be his object "to exhibit a concise view of those plans of analysis which may be performed simply, usefully, and at small expense," and expressing the satisfaction which he will feel "if his volume should in any way increase the number of those who occupy their leisure hours with the study of animal analysis, as applied to disease;" while, in a new preface, he declares the present edition

to be constructed on the plan of the first, with an addition on the treatment of urinary disease ; but he asserts that he has avoided as much as possible entering into scientific details as foreign to the purpose of his work, which must not be regarded as an elaborate treatise on the blood and urine in all their relations, but simply as a work on proximate animal analysis. He states, at the outset, that considerable alterations have been rendered necessary by the advances made in animal chemistry since the first edition was published ; but a careful collation of the two editions has enabled us to recognise but few of these, and of matter altogether new, yet admissible consistently with the plan of the work, there is scarcely so much as an interval of nine years might lead us to expect.

The instructions contained in the Introduction, and the cautions given in reference to the performance of Evaporation, Filtration, and Incineration, though not new, will be found necessary to beginners and useful to most readers ; the recommendation of weighing by counterpoise where great accuracy is required, is certainly entitled to adoption, and not less important is the direction to note with the greatest care the result of every weighing performed during the analysis. Of the circular-wicked spirit-lamp, Dr. Rees very justly remarks that it is a somewhat dangerous piece of apparatus in the hands of the beginner, he might have added that, where a long continued heat is necessary, it must also be an expensive one. He has omitted all mention of the use of a circular gas-burner, but this we have seen introduced as a source of heat in two laboratories, and we are disposed to believe that, in large towns at least, where gas is readily procurable, it might advantageously be resorted to as a cheap, very manageable, and, for operations on a small scale, very sufficient heating power. The necessity of being provided with absolutely pure re-agents, is very properly insisted upon, and the common impurities existing in some of them are briefly pointed out ; and we come next to two lists, one of chemicals and one of instruments of analysis, very encouraging from their brevity and attractive from their precision to the student about to put in practice the methods of analysis to be taught in the subsequent pages. We are told that these instruments will render our laboratory pretty complete, which amounts to saying that the list given is pretty complete. Now we protest decidedly against such a list being pretty complete, or nearly complete, we hold that it should be absolutely complete, and that the author should afterwards employ no article of *matériel* not previously set down, as the counsel in a prosecution can summon no witness not named before-hand.

The adoption of any less stringent rule than this is sure to result in misconception and disappointment ; accordingly we shall see that the beginner, who, trusting to his list, has supplied himself with almost all things needful, will find himself at a loss for the stoppered bottle and bits of lead required in the very first analysis. It is true that these are mere trifles, and for the most part easily procurable, but the time of discovering the deficiency may prove a very inconvenient one for remedying it. Farther on, it is startling to perceive that, for determining the quantity of sugar in diabetic urine, we are to make use of so important an addition to our stock as a mercurial trough with a graduated receiver. Our own wants, too, must teach us to provide both an instrument for determining

the specific gravity of urine and of saline solutions, and one also for securing in our alcohol, and spirits of wine, the various degrees of strength at which for different purposes we are directed to employ them. A thermometer too is an omitted article, though we meet subsequently with several occasions for its use.

An account of the visible structure of the blood as it is made known to us by the microscope, precedes a description of its analysis. The presence of fibrinous corpuscles, as well of blood-corpuscles, in the compound liquor sanguinis is spoken of, and the separation of this last into crassamentum and serum is described. This spontaneous coagulation, we may remark, as it occurs either in the whole mass of the blood or in a separated portion of the liquor sanguinis, is considered by Dr. Babington to indicate the extinction of its vitality. The constitution of the blood-corpuscles, as established in great measure by Dr. Rees' own researches, is detailed. We believe that the existence of a central nucleus, spoken of elsewhere by himself, though he does not here mention it, is generally admitted, as well as that of a membrane or envelope enclosing the fluid from which it derives its colour, and traversed by inward or outward currents according as the corpuscle be placed in a fluid of less or greater specific gravity than that of its own fluid contents.

The first problem in analysis is the determination of the proportion of Water, solid matters of Serum, Fibrin and Red Corpuscles in healthy Blood, and of this we shall give a condensed sketch, which will serve to show with what simplicity and distinctness the means of accomplishing a task of some difficulty and intricacy are set before us.

Three separate small quantities of the same blood are to be received in three distinct vessels, whereof one is a stoppered bottle and another a platinum capsule, the weight of each of these vessels being accurately known. For the determination of the proportion of fibrin, the blood in the bottle is to be agitated during coagulation with eight or ten small pieces of lead of known weight, which will cause the fibrin to attach itself to them. Now the balance will show us the weight of the bottle, lead, and blood together, and as those of the bottle and lead are known, the difference will be that of the blood operated upon. The bottle is now to be emptied and the fibrin carefully separated from the lead, collected, washed, dried and weighed. This gives us the quantity of fibrin in a certain known quantity of blood, and as the proportion is invariable for the same blood, we can calculate the quantity in any other weight of blood as in 1000 grains.

The weight of the blood in the capsule ascertained as before by subtracting that of the capsule alone from that of the capsule and blood together, is next to be noticed; and the capsule is to be placed over a water-bath, and the blood dried till it ceases to lose weight. By again weighing the capsule with its contents we now learn both the loss of weight, which is equal to the weight of water contained in the known quantity of blood, and the remaining weight, less the weight of the capsule, which shows the amount of solids in the same quantity of blood. Hence we deduce the quantity of water and solid matter respectively in any other quantity of the same blood as in 1000 grains.

We have before determined the weight of Fibrin in 1000 grains of

blood, and by subtracting this from the weight last obtained, we shall get the aggregate weight of the solids of the serum and of the solids of the corpuscles in 1000 grs. of blood.

We know then the weight of Fibrin
of Water
of solids of serum and of red corpuscles together.

By treating a portion of serum, obtained after coagulation from the blood in the third vessel, in exactly the same way as the blood in the platinum capsule was treated, we learn the relative proportions of water and solid matter contained in the serum; and, assuming that all the water of the blood exists in it in combination, so as to form serum, we can calculate the weight of solid matter of serum corresponding to the quantity of water found in the blood, and this weight, subtracted from the sum of the weights of the solids of serum and of red corpuscles, leaves us, of course, the weight of the solids of these latter.

It would be more correct to say that this process gives us the weight of dry globulin, it does not give the weight of the solids contained in the hæmatosine, unless that fluid be of greater density than the serum, in which case it gives the weight of the solids due to that difference in addition to that in the globulin: it gives a deficient weight if the hæmatosine alone be less dense.

The above process is new in the second edition, but as the blood cannot always be obtained before coagulation, the former method, which obtained the weight of fibrin from the clot, is given in a note.

Having given this specimen, we need not follow our author through the details of his analysis of serum, which is identical with that given in the former edition, we may remark in passing that we meet here, as elsewhere, with useful hints and cautions very valuable to a learner, and which could only have been suggested by one to whom the processes had been practically familiar. Of such a kind is the direction, p. 25, that on treating the dry residuum of the evaporation of serum with boiling distilled water, "care be taken that the heat be kept to 212° Fahr. at the moment of admixture, or otherwise the albumen is liable to assume a gelatinous form, which greatly interferes with the process." Again, the caution in the note at page 32 against using "too great a quantity of nitric acid for dissolving the earthy salts, because a great excess of nitrate of ammonia tends to hold the phosphate of silver in solution," is both useful and necessary.

The white matter of the blood-corpuscles called globulin, is said in its re-actions to resemble fibrin and albumen, being soluble in alkalis, and precipitable when so dissolved on neutralization with acids. The hæmatosine or red colouring matter of the blood-corpuscles is mentioned as yielding an ash rich in iron, and the author is of opinion that, if this metal be met with elsewhere, its presence is accidental and derived from the fluid of the corpuscles.

Dr. Rees, when asserting that should crystals appear in the alcohol extract of blood after the addition of nitric acid, they must be nitrate of urea, seems to have overlooked or disregarded the statement of Simon, who mentions figures and crystals of nitrate of soda as liable to occur under similar treatment of blood devoid of urea.

For detecting sugar in diabetic blood, Trommer's test is applied to the filtered fluid obtained by treating the dried serum with boiling distilled water. But the quantity of sugar present is determined by evaporating to dryness this filtered solution, and digesting the dried residuum in alcohol of sp. gr. 0·825, evaporating this filtered alcoholic solution again to dryness, treating with ether to remove fatty matter and some urea; again taking up the undissolved portion with alcohol, and leaving it to spontaneous evaporation, whereby is obtained a crop of mixed crystals principally composed of alkaline chloride and diabetic sugar, which are to be separated by careful manipulation. Dr. Rees has effected this separation by using alcohol of low specific gravity; for, when agitated in this, the chloride subsides before the crystals of sugar, and allows of the latter being poured off partly dissolved in the fluid. In this way he obtained 1·8 of diabetic sugar in the serum of a patient whose urine had a specific gravity of 1048, but he wishes this to be considered only as an approximative result.

In taking leave of the analysis of the blood, which terminates here, we may remark that the author has omitted all notice of the oxydes of Protein, which are stated by Mulder to exist in healthy, and, to a large extent, in inflamed blood; neither has he expressed any opinion on the question, whether it be the iron or the Protein of the blood by which the oxygen of the air is appropriated and distributed over the system; and we think that, in both these respects, he has exercised a sound discretion,-since, in a work of a somewhat elementary character, we may well be content to forego the means of seeking for substances not mentioned in the analysis of Andral and Gavarret or of Simon; and the discussion of the physiological question is clearly beyond the intended scope of the treatise.

We propose to make some extracts from the portion of the work which treats of the urine, of urinary deposits, and of calculi. We shall next briefly advert to the contents of the Appendix, and shall then proceed to offer some remarks upon that entirely new portion of the book, which speaks of the treatment of urinary diseases.

We think that Dr. Rees would have done well, and not have departed from his general plan, if he had prefixed to his consideration of the urine some brief view of its normal properties, of the source of its acidity, of its average density, and of the variations to which it is in this respect liable, according as it passed shortly after drinking freely of fluids constituting the urina potus, or after the digestion of a principal meal, when its qualities may be referred to the fresh matters taken into the system, or again when it is excreted after a night's rest, and removes, in all probability, from the blood substances which are derived from a secondary assimilation.

Some notice of these differences of its origin and properties, we conceive, should have been taken, since inferences drawn from the chemical analysis in different cases, unless it be compared under similar circumstances, would have a tendency to mislead; and no calculation approaching to accuracy could be formed of the amount of solid egesta carried out by the kidneys, unless not only the quantity of urine, but its average density during the day, be approximatively ascertained.

The following is the method of analysis pursued for the determination of the quantity of urea, and a description of its property :—

"Evaporate urine to the consistence of a strong syrup, and then add pure concentrated nitric acid, until the whole mass becomes more or less solid. The crystalline matter which is now produced consists of nitrate of urea. This must be washed from adherent impurities by ice-cold water, and then passed between folds of bibulous paper to dry. These crystals are now to be dissolved in lukewarm distilled water, and neutralised with carbonate of barytes. This mixture is to be evaporated to dryness, and alcohol boiled on the dried mass. In this way the urea may be extracted from the barytic salt. It may be obtained in colourless crystals, by digesting the alcoholic solution with animal charcoal, then filtering, and allowing the urea to crystallise by spontaneous evaporation. The chemical properties of urea are as follows :—

"When heated on platinum foil it fuses; and if the heat be urged, is decomposed, yielding fumes of carbonate of ammonia.

"It is very soluble in cold water, but more so in warm. It gives out a great degree of cold when dissolved in any considerable quantity.

"The concentrated solution in water will bear a heat of 212°, without decomposition; but in dilute solution it quickly decomposes at that temperature.

"Alcohol of specific gravity 0·816 dissolves a fifth of its weight of urea at 60° Fahrenheit; when boiling it dissolves nearly its own weight.

"It is slightly soluble in ether. The caustic alkalies decompose urea into carbonate of ammonia.

"The nitric and oxalic acids combine with urea, forming salts more or less insoluble. The crystallisation with nitric acid forms one of its best distinctive characters.

"Urea possesses neither an acid nor alkaline reaction; its crystalline form is that of a four-sided prism, exceedingly delicate, and silky in texture." P. 51.

This is all very good, and clear, so that we are at a loss to know why, when the same problem comes to be solved again at page 64, a different process is recommended, viz., the use of oxalic acid and carbonate of lime, instead of nitric acid and carbonate of barytes.

There is a simplicity in uniformity much to be admired, whereas unnecessary difference is always embarrassing. In the search for urea in the blood at p. 40, in its qualitative and quantitative determination in the urine at p. 50 and 64 respectively, we think the beginner would be apt to recognize distinct problems rather than modifications of the same.

The separation of the lithic acid, at p. 57, by hydrochloric acid, is simple and easy, as is its resolution in potassa, and re-precipitation by the same acid to free it from colouring matter; the detail of its chemical properties is deferred till we come to the analysis of urinary calculi.

The reactions of vesical mucus are given as its solubility in ascetic and nitric acids, from which solutions it is precipitable by ferrocyanide of potassium; its solubility in potass with the evolution of ammonia, and its non-solubility in sulphuric acid. Viscidity and transpareney are, we believe, correctly spoken of as the properties of mucus, distinguishing it from pus, which is opaque and devoid of tenacity, at least when not modified by alkaline re-agents.

We are desired, in order to prove the presence of hydrochlorate of ammonia in the urine, to expose it for several days, by which means we produce a crystallization of various salts at the bottom of the vessel, consisting principally of hydrochlorate of ammonia, of chloride of sodium, and of

ammoniaco-phosphate of soda mixed with earthy phosphates. Now, as no one, we suppose, will contend that the formation of these salts is a result merely of spontaneous evaporation, without any decomposition and re-arrangement of the proximate principles of the urine, we think that such a method of testing is wholly inconclusive and unsatisfactory, unless it be shown, which has not been attempted in this case, that the decomposition and re-arrangement spoken of above do not, and cannot affect the composition of the particular salt or principle of which we are in search.

The presence of chlorides, phosphates, and sulphates, in combination with alkaline bases, is shown by testing the aqueous solution of the residue of the incineration of the solids of urine with nitrate of silver, and nitrate of baryta.

That the bases are alkaline, not earthy, is to be shown by adding a solution of carbonate of potassa to a portion of the same solution, as was done in testing the saline matters of the blood, at page 29; but, why the former process is not here referred too, and the determination of the alkaline bases, by means of tartaric acid, and the effect on the colour of flame, is not carried out as before, we are puzzled to find out. Tartaric acid in excess will act characteristically upon potass, whatever be its state of combination, and even where there is an excess of the strongest acid; if ammonia be used in excess before the addition of tartaric acid; and this addition of both ammonia and tartaric acid would not interfere with the application of the test for soda to the evaporated residue of the fluid from which the potass had been thrown down.

At page 61, we have described the method of recognising the earthy phosphates constituting the bulk of the remainder of the insoluble matters contained in the residue of the incineration of the solids of the urine. Now there is no reference here to the method described in page 31, for examining these phosphates as they exist in the blood: it is therefore a peculiarity not much to be commended, that we have here no allusion to the method of determining the acid in combination with the bases. In the former part which treats of the blood, we have the phosphoric acid tested (after neutralizing the nitric solution of the phosphates with ammonia) by nitrate of silver, which does produce a characteristic yellow precipitate of phosphate of silver, not blackening however so readily as is stated; and the blackening not being distinctive of the presence of phosphoric acid if it did occur; and also by the effect of phosphoric acid in giving a green tinge to flame. In this part, as regards the bases, we are only told that, "in order to demonstrate the presence of the earthy phosphates, the acid solution must be neutralized with ammonia, when the peculiar gelatinous appearance of the precipitate will sufficiently characterize its nature." But at page 61, where the phosphates of the urine are examined, the determination of the acid is omitted, but we have the bases accurately determined by the precipitation of lime with oxalate of ammonia from the nearly neutral solution in nitric acid, and the subsequent precipitation of the ammoniaco-magnesian phosphate from the supernatant fluid by the addition of more ammonia; and we have thus the singular phenomenon of one and the same problem, viz., the determination of the nature of certain phosphates commenced on those derived from the blood, and completed on others to be found in the urine. We are aware

that the quantities operated on are minute, but we think that this will hardly excuse the incompleteness of either separate examination.

Dr. Prout's arrangement of the urinary deposits has been adopted; and the determination of their nature is simple and easy. Characteristic tests are given for the oxalate of lime deposit; we doubt whether this would be found insoluble in warm dilute nitric acid, if the dilute acid be as strong as that mentioned in the list of chemicals that is made, with one part of acid to nine of water. And, after all, the microscope, we believe, affords the best means of ascertaining the nature of this precipitate.

We wonder that, in treating of cystine, so characteristic a test as that proposed by Liebig should be omitted, and which consists in dissolving the calculus or gravel in a strong solution of caustic potass, and adding to the solution so much of a solution of acetate of lead, that all the oxide of lead is retained in solution. When this mixture is boiled there is formed a black precipitate of sulphuret of lead, which gives to the liquid the aspect of ink. Abundance of ammonia is also disengagad, and the alkaline fluid is found to contain, among other products, oxalic acid.

A list of the indications produced by different re-agents is given at page 77, and constitutes a kind of recapitulation of actions, for the most part mentioned before, but why it is inserted here, or why being inserted, other actions and other agents are not included, we have no reason assigned, and are, therefore, content to remain in ignorance.

The fact that vegetable colouring matters exist occasionally in the urine, and that their nature may be detected by the green tint produced by potass in excess, and the re-production of the original colour by supersaturation with an acid, is one of practical importance. Dr. Rees expresses no opinion as to the fact of mercury having been detected in the urine, but states that he himself failed to discover any trace in the urine of a person suffering under mercurial salivation. Our own belief is, that it has never satisfactorily been proved to be present in this secretion, and that what was discovered by Cantu, must have gained accidental admission from without.

The quantity of sugar contained in diabetic urine is ascertained by fermentation, and collecting the carbonic acid evolved in a graduated jar over mercury, and allowing one grain of sugar for every cubic inch; this, no doubt is a sufficiently accurate method; our only objection to it here is, that it involves a slight departure from the simplicity and inexpensiveness of the means to the employment of which we are limited in this treatise.

We cannot help here adducing another instance of Dr. Rees's extreme fondness for diversifying his process, whereby instead of bringing many individual cases under one rule, he makes many rules for one and the same case. Is sugar to be sought for? If we look for it in the blood, its presence, after the preliminary steps, is to be determined by Trommer's test, (p. 47.) Do we seek it in the urine? Mr. Moore's test by Liquor Potassæ is recommended, (p. 80.) Is its quantity to be determined? If in the blood, it is to be separated by means of alcohol from the evaporated residue of the watery extract, (p. 47.) If its quantity in the urine is to be ascertained; fermentation, as we have just mentioned, is to be employed, (p. 89.)

Now we are far from asserting that altered circumstances, relating to

the quantity of the principle sought for, or to its state of admixture do not render a modification or total change in the mode of operating necessary or advisable, but we think that an author creates perplexity when he wantonly adopts these variations, and that, in order to instruct to the best advantage, he should always explain the grounds of his preference.

The analysis of urinary calculi will not detain us long; they are divided into two classes, those whose texture and composition are destroyed by a red heat, and those capable of resisting heat. In this section we have a repetition of processes with which in the former part of the work we had become familiar, as testing for lithic acid and lithate of ammonia; but oxalate of lime in a calculus receives a somewhat fuller consideration than it did as a sediment, and its decomposition by means of boiling in Carbonate of Potassa is spoken of, which perhaps affords the best means of satisfactorily proving its constitution. Cystine too meets with better treatment at this second mention than before, and we have now Liebig's process given, though not quite in full, the production of oxalic acid not being mentioned.

Dr. Rees has not adopted the term Uric Oxyde, or Urous Acid for the substance first discovered by Dr. Marcet and named by him Xanthic Acid; but seems somewhat to incline to the opinion that it is a compound of uric acid and albumen.

In the Appendix we meet with a new formula for the more accurate determination of the proportions of lime and magnesia, of which we shall only say that we much doubt our need of it; and we next come to a repetition of the same process which has already been given three times, viz: at pages 61, 72, and 112.

We have, farther on, a more particular account of the manner of extracting the fatty matters of the blood and of their different characters; and then some interesting results of the examination of blood as derived from the researches of M. Lecanu and other experimenters.

The organic acids of urine are next spoken of, which we the more readily pass by in silence, because the subject has been discussed in a recent article in this Review, when Dr. G. Bird's work was under examination.

Another note is then given on the quantitative estimation of fixed Alkaline Chlorides, Phosphates and Sulphates in the urine, describing a process precisely the same as that given at page 60, except that, as we must have variety, the phosphoric acid is here separated in combination with barytes instead of with silver: and the potass thrown down with chloride of platinum instead of tartaric acid, and we much doubt whether the alteration in either case be an improvement. Some remarks upon the characters of albuminous urine and the tests of this condition follow, but why these were not incorporated in the text it is difficult to discover. We think that a simple and certain test for the determination of the presence of albumen in the urine would most naturally have preceded that which is to show us how to determine its quantity. The fact of copaiba and cupebs, when administered internally, producing an appearance in the urine, resembling that of albumen, when the tests of this last are applied, is interesting and important, and the means of distinction, viz: the non-subsidence of a precipitate in the former case after several days is a most

useful and necessary matter of information. The pith of this note certainly deserves a more prominent situation in the body of the work.

A table follows indicating the frequency of the occurrence of albuminuria—this we consider valuable. The non-production of albuminous excretion from the kidneys, as a consequence of the action of mercury on the system, seems almost established by the examination, by Dr. Francis, of the urine of fifteen patients under the influence of the remedy.

It was scarcely necessary to tell us again here that, by boiling a portion of urine in which an unknown sediment is diffused, we might recognise the presence of lithates or phosphates, according as the liquid becomes clear or not. We have before, more than once, had occasion to learn that the lithates are soluble at a boiling temperature and the phosphates not so; the practical application of this fact would most naturally have been briefly indicated immediately after we had acquired a knowledge of it.

After a description of some deposits of matters accidental to urine, we have Dr. Henry's table for calculating the solid matters contained in Diabetic urine of different specific gravities. We cannot, in passing, avoid the remark, that all tables of the solid contents of urine go to establish the general fact that, as far as regards the matters contained in that fluid, solution never takes place without expansion; for otherwise, in a bulk of urine equal to that of 1000 grains of distilled water, we should always have exactly one grain of solid matter for each unit of increase in specific gravity. Now all the tables give much more than that amount: and this result can only be explained in the manner just pointed out.

Several authors have given us the law of this table so as to facilitate its use, but the rule deduced from it by Dr. Frampton, as published in the Medical Gazette, is the most easily remembered, and the most readily applied. It is this: multiply the number of degrees by which the density of the urine exceeds that of distilled water by 1·2, this will give you the solid contents of one fluidounce in grains, multiply this by the number of fluidounces, and you have the whole solid contents of the quantity of urine experimented upon.

A brief notice of Kiestein, which Dr. Rees considers a modified casein; and of chyloserous urine in which he satisfied himself of the existence of chyle, closes the Appendix.

He who wishes to enter on the study of this branch of organic chemistry, with the assistance of Dr. Rees' book, would do well, we think, to begin his reading at the end, and to pursue his course in an inverted order till he comes to the beginning. By so doing he will have the advantage of becoming familiar with simple and easy processes before he comes back to the more complex and difficult with which the book sets out. This will be a great gain; not that it can make the arrangement altogether uniform or good. This Dr. Rees seems to guard against; accordingly, when he treats of blood, the quantitative precedes the qualitative analysis, when of urine, the order is reversed. Things so nearly akin as Urinary Deposits, and Urinary Calculi are separated in his discussion of them to admit of the examination of albuminous and diabetic urine, the processes applied to which approach so nearly in character to those employed on healthy urine from which, therefore, they are divided. Deposits having been partially classified (some stray behind by themselves, being too bad

we suppose, for any class) on one principle, namely, that of their color and texture; the calculi are arranged on another, namely, that of their comportment under the influence of heat. The new matter contained in the present edition is rather brought in patches than properly incorporated. We are willing to believe that some things to which we have raised objections in this article, as the multiplicity of methods for accomplishing the same end, are a result rather of the embarras des richesses than of any other cause; others, and the greater number, are due to carelessness. It is matter of astonishment and regret to us that Dr. Rees has not been at more pains to set forth to better advantage the large store of accurate knowledge which he undoubtedly possesses. Had he merely published an account of the various experiments which he himself has made, such a work like the present, would have been replete with interest and value, but why should not the best material be also moulded into the best form before it is set before the world.

We enter with no little interest upon the consideration of the treatment of urinary diseases recommended by one so expert in chemical enquiries as our author. If the field in which he has more particularly labored for the advancement of medical knowledge have been before broken and worked by others, his fellow-laborers have been comparatively few, not sufficing to exhaust the soil, from which we trust to gather much useful fruit. We gladly hail, therefore, the announcement of our author that, "on some points of practice, he has been led to form opinions materially affecting treatment, and not entirely devoid of novelty." We shall not follow Dr. Rees into an enquiry into the different constitutional states associated with deposits of lithic acid and the lithates, a subject upon which there is a nearer approach to unanimity than is common in the medical world. Our present concern is with treatment, as guided by certain chemical phenomena, and we extract a passage containing remarks, in the justice of which we entirely concur.

"When the red crystalline form of lithic acid is excreted, it has been very commonly supposed that the chief benefit we can derive is to be expected from the administration of alkaline remedies, which are known to correct the acid state of urine found in connection with this form of disease, and, moreover, to act as solvents on the deposit itself. It is a matter of fact that alkaline remedies will constantly cause the urine of patients suffering from the lithic acid deposit to become clear and transparent and that the symptoms of dysuria are generally relieved by the remedy; but I have seldom known this palliative treatment attended by any lasting benefit; and we must remember, that it should be our object to correct those general conditions of system on which the production of the unhealthy urine depends, rather than to afford a temporary benefit, by the use of means in themselves but ill calculated to effect the great object of all treatment." P. 125.

We have for some time past, like Dr. Rees, looked upon alkaline remedies as mere palliatives in the treatment of disease, tending, indeed, to the amelioration of some secondary inconvenience, as that arising from the presence of acid in the stomach, or from lithic acid in the urinary passages, but being so powerless against the original sources of mischief, that they must be taken in continually increasing quantities to keep the enemy at bay. This, we believe, is commonly the case with those who are in the

habit of dosing themselves with carbonate of soda; and we once met with a young woman, who, from the nature of her employment, had more than ordinary facilities of obtaining chemical substances, with regard to whom, we were told, that a pound lasted only three weeks.

We are glad to see Dr. Rees, himself a chemist, resisting what he properly calls the dogmatism of the laboratory; and expressing his distrust in the ingenious doubling and mingling of atoms as a means of assisting us in the true nature of disease, or the plan best adapted for its cure.

Mild aperients, with vegetable tonics, regulated diet, moderate exercise, and the use of horse hair gloves, or of a flesh brush to excite the function of the skin are the expedients recommended as tending to give permanent relief. For some cases acid tonics are stated to be beneficial, and we think justly so.

In cases of severe dyspepsia, characterized by the deposition of lithates, in urine containing a small quantity of sugar, the prescription of opium with Ipecacuanha at night, and the use of Hydrochloric Acid in large doses is strongly recommended.

We have no particular fondness for apparent paradox, but think the remarks on some particular cases of alkaline urine depositing earthy phosphates, and treated with alkalies, too important to be omitted. There are cases in which the urine is supposed to be acid on its leaving the kidney, but, by its irritation of the internal surfaces of the ureters and bladder, to produce so copious a secretion from them of alkaline mucus as to cause its own acidity to be more than neutralized, and the phosphates deposited. Dr. Rees thus states his reasoning, and the successful issue of the treatment it suggested.

"It appeared to me that the use of alkaline remedies might be of advantage in these cases of alkaline urine, and, moreover, that if the alkali were administered in small doses so as only partially to neutralise the acid state of urine as secreted by the kidney, we might relieve the irritation of the mucous membranes, stop the excretion of alkaline matter, and have an acid urine excreted, the natural acidity having been only partially destroyed by our remedy. It may appear somewhat unaccountable to those who merely look to the chemical view of the matter that any one should expect to render alkaline urine acid by the administration of alkalies, but such was the treatment I adopted, and the result fully corroborated the correctness of the theory which suggested it as a crucial test." P. 137.

A description of several cases follows confirmatory of the statement contained above; and we need only add, that we have heard from another source of high authority of the disappearance of phosphatic deposits under alkaline treatment, the remedy exhibited being in this case at first bicarbonate of lime in solution, and afterwards lime water.

Dr. Rees does not propose this treatment as universally effectual, but affirms his certainty, that in the greater number of cases in which alkaline and neutral urine exists with phosphates as a deposit, we shall find alkaline remedies of avail. He gives reasons for the opinion that the phosphates in these cases are precipitated from the urine as the result of the neutralizing action of an alkaline mucus on its acids, but not secreted by the mucous membrane; and he thinks it of importance to distinguish the cases where the phosphates, though precipitated, do not exceed the normal

amount passed in the urine from those in which their amount is preternaturally increased; the last condition, he conceives, attends some important constitutional diseases, as for instance, mollities ossium in children. In the view taken of the sources of oxalate of lime deposits, the number of vegetables in common use containing oxalic acid, or the oxalates, as more especially the stalks and roots of rhubarb, and the leaves of French sorrel, are not sufficiently adverted to; the experiments of Dr. Aldridge are referred to, wherein it is shown that boiling alone produced crystals of oxalate of lime in healthy urine, and it is presumed that the acid may be formed from the decomposition of lithic acid; it is to be remembered, however, that the fluids cannot be boiled within the body, and we have no indication of any action within the system which can have an equivalent power. Upon how many theories of this kind may we pronounce the verdict of—, not proven. In cases of this kind, as in numerous others, we fall back upon the plan approved by experience of improving, as far as we can, the functions of the digestive organs, and skin, with little guidance derived from the existence of this particular deposit, and, alas! but little assistance derived from mere chemical sources.

We fully assent to the proposition that, as far as treatment is concerned, little advancement has been made with regard to albuminuria; it is in its advanced stages a most formidable and intractable disease. Recent investigations, we are told, have shown the structural alteration of the kidney to be of the nature of a fatty degeneration; but, alas! how little practical knowledge do we at present obtain by assimilating it with an analogous change in the liver.

We demur, on the authority of Dr. Christison, to the statement that, in every stage of granular disease of the kidney, we observe the urine to contain albumen. We believe that in an advanced stage albumen may be altogether absent, though liable to reappear from trifling causes; indeed, this is subsequently admitted by Dr. Rees himself. Our author's experience is valuable in confirmation of the generally-received opinion, that the solid matter evacuated with the urine during the day in the later as well as early stages of this affection, is far below the proportion of health; he mentions the fibrin in the blood as generally exceeding the natural amount, the albumen as often much diminished, the specific gravity of the serum, which in health is about 1029, having been once found by him as low as 1015; the deficiency of albumen he speaks of as attendant upon the early, that of hæmatosine upon the later stages of the disease. Our own experience has long ago satisfied us of the ready susceptibility of those labouring under this disease to the action of mercury, but we have never seen any injurious consequences from its use, and Dr. Rees seems to concur in both these conclusions. In the description of the course and complications of this disease we find nothing that has not been stated in the full and accurate treatise of Dr. Christison, unless it be the liability to pericardiac inflammation.

As regards treatment, we believe, with the last named author, that anasarca dependent on albuminuria *alone*, is not an untractable form of disease: we fancy that we have often warded off apoplexy by watching constantly, and acting promptly, whenever distinct threatenings were discerned, and on such occasions we have not hesitated to bleed. But for

the vomiting, sometimes alone, sometimes alternating with diarrhœa, we have in some cases found no remedy and little relief, and for this state of things we have no suggestion from our author. The treatment of the acute stages with diaphoretics, and of the less active symptoms with iron, is, we conceive, judicious: opium we eschew or give cautiously, lest it mask the inroads of head affection.

Our space will not allow us to enter at any length upon the remarks made on the subject of Diabetes: the observation that, even in advanced cases the sugar on some days is not to be detected in the urine, while the high specific gravity of the secretion is kept up by the presence of an enormous excess of urea is very curious, and bears a strong analogy to Dr. Prout's observation of the saccharine condition being at times preceded by great abundance of urea. The use of opium, we think, is here too disparagingly spoken of; we have treated few but very far advanced cases: in one, in which we gradually carried its exhibition to the extent of six grains three times a day, the general symptoms were decidedly improved, though the secretion of sugar was little if at all diminished; no inconvenience arose from the administration of these doses, which neither constipated the bowels nor produced drowsiness. Iron is recommended by Dr. Rees, and we think favourably of some of its preparations, which we have tried. One paragraph on the diet seems well deserving attention. "As regards the diet best suited to this form of disease, it appears anything but reasonable to subject the stomach to the severe discipline which has been applied by the fashion of the day in prohibiting the use of vegetable food, and restricting the patient to a purely animal diet." The exhibition of magnesia is recommended, but whether this treatment is dictated by theory or experience, we are not told. Warm bathing at first, and cold sponging and cold bathing when they can be borne, are also favourably spoken of.

It will be seen, from what has just preceded, that the views of Dr. Rees on the subject of treatment are independent and sometimes original, founded on his own reasonings and experience, rather than taken up as matter of fashion or caprice. There is one thing that we especially admire in this part of his work, namely, that though so good a chemist he has no disposition to make the experiments of the laboratory overrule the lessons to be learned only in the sick room; he takes into account the influences of a vital action as well as the affinities of chemistry.

Elements of Materia Medica and Therapeutics. By *Edward Ballard*, M.D., Lond., and *Alfred Garrod*, M.D., Lond., 8vo. pp. xxiv—447. London: Taylor & Walton, 1845.

It is not surprising, when we consider the nature and variety of the subjects treated of in works on Materia Medica that they should be less frequently than almost any others brought under our notice. Independent of the acquirements requisite for the preparation of the more extended and complete works of this class, their necessary size and expense, must limit

the number, inasmuch as a remunerating sale cannot be expected for more than a few, and those of the highest authority. The invaluable Cyclopædia, misnamed "*Elements* of Materia Medica and Therapeutics," by Dr. Pereira, and the excellent systematic works of Drs. Thompson and Christison, and the Dictionary of Brande, have acquired a celebrity and authority, at once so extended and so just, as to defy much competition. Of smaller manuals and compendiums, for the most part compiled from the larger works above-mentioned, there are many, and some excellent of their kind. It is, however, remarkable, that hitherto, no work of an intermediate character should have emanated from the British press. We make no allusion to the valuable and erudite work of the accomplished President of the College of Physicians, because the Pharmacologia of Dr. Paris must be considered a work sui generis, altogether different in its aim and character (more particularly the last edition) from those of ordinary treatises on Materia Medica and Therapeutics.

"In introducing," say the authors of the present volume, "another work upon Materia Medica, in addition to those already before the public, the writers desire that it should be looked upon as strictly elementary; and, in so far as the description of the drugs is concerned, nothing more than a compilation. The necessity of this outline has been pressed upon them for some time by students with whom they are respectively connected, as well as by gentlemen in considerable practice, both of whom felt the inconvenience of reading through extended treatises, with a view to those essential points of instruction which might be conveyed in fewer words and be less encumbered with extrinsic matter. Without depreciating, then, the larger works in our language as books of reference, the present is intended to be one every word of which the student ought to read, and with whose entire contents he should render himself familiar."—*Preface.*

This account of the character and scope of their work, as given by the authors themselves, might exonerate us from the duty of an extended critical examination of the individual subjects of which they treat, on the assumption that, as stated in their preface, they have "carefully collated" and "consulted" "the larger works of Drs. Thomas, Pereira, and Christison, and the established authors on Chemistry, Natural History, and Medicine." Nor is it our intention, in what follows, to attempt more than to offer a few remarks on the manner in which the authors have performed their task, and give our readers such an account of the volume before us as may enable them to judge how far it supplies, what we believe, would be considered a deficiency in medical literature.

Keeping in view, therefore, the design of the work, and the necessity for economising space as well as matter, we cannot but object to the occupation of no less than thirty pages with a table of contents, which is altogether useless for the purposes of reference, while the index, which, in all works of this kind, should be as full and complete as possible, occupies but two pages and a half, and is sadly defective. The volume very properly commences with a therapeutical introduction by Dr. Ballard, which occupies thirty pages. Judiciously avoiding any attempt to define the actual modus operandi of medicinal agents, and to classify them accordingly, Dr. Ballard contents himself by stating certain general principles, which have been ascertained chiefly through the medium of modern chemistry. With reference to the chemical composition of the active principles of

medicines, he alludes to the singular fact, "that in several of those, whose operation upon the nervous system is manifested in the most energetic manner, a certain similarity prevails," not only as regards the relative proportion of their carbon, hydrogen, and oxygen, but also in the existence of a minute proportion of nitrogen, as indicated in the formulæ of the following alkaloids:—

Solania	$C_{84}H_{68}NO_{28}$	Strychnia	$C_{44}H_{23}N_2O_4$
Morphia	$C_{35}H_{20}NO_6$	Brucia	$C_{44}H_{25}N_2O_7$
Codeia	$C_{35}H_{20}NO_5$	Quina	$C_{20}H_{12}NO_2$
		Cinchonia	$C_{20}H_{12}NO$

It would appear, therefore, that when, on analysis, any vegetable drug is found to possess so remarkable a composition as this, we have good grounds for predicating its activity.

It is observed also, that other elementary substances derived from the inorganic kingdom, and which in their chemical characters are allied to nitrogen, remarkably influence the functions of the nervous system, *e. g.*, antimony, arsenic, and phosphorus; and it is hinted that the same analogy probably exists between the operation and chemical relations of other natural groups of elementary bodies.

As regards the general mode in which medicines influence the functions of the body Dr. Ballard adopts the views of Professor Liebig. Putting out of consideration those agents which exert a *directly* mechanical or chemical influence, the effects of medicines may be said to be of two kinds, either an increase or diminution of the energy of the vital functions, as displayed in the phenomena of sensation or motion; or else a material alteration in the formation and composition of the secretions eliminated from the blood. In reference to these two classes of effects, Dr. B. says:

"1st. The perception of a sensory impression, and the origination of a motor influence, depend upon the mode in which the cerebro-spinal centres perform their allotted functions, and are accompanied by a transformation of their tissue. Medicines which influence either of these, therefore, might be supposed to act primarily upon the nervous system, and to modify in some way the chemical metamorphoses which it undergoes. The active principles of *Opium*, *Nux Vomica*, *Cinchona*, *Bark* and *Ipecacuan*, for example, might be 'supposed to take a share in the formation of new, or the transformation of old brain and nervous matter.' When, therefore, we inquire how far these active principles, which diminish sensibility, produce tetanic spasm, increase muscular tone, or diminish tone and induce vomiting, are fitted by their composition to act in the manner indicated, the singular result announced by Professor Liebig, is obtained, 'that the composition of the most active remedies, viz., the vegetable alkaloids, cannot be shewn to be related to that of any constituent of the body, except only the substance of the nerves and brain.' They all contain a minute amount of nitrogen, very much less than is discovered in the compounds of *Proteine*, approaching in this respect, the fats which contain none. 'If it must be admitted as an undeniable truth,' argues this distinguished authority, 'that the substance of the brain and nerves is produced from the elements of vegetable albumen, fibrin or caseine, either alone, or with the aid of the elements of non-azotised food, or of the fat formed from the latter; there is nothing absurd in the opinion, that other constituents of vegetables, intermediate in composition between the fats and the compounds of proteine, may be applied in the organism to the same purpose."

"2nd. In considering the mode in which remedies of this class alter the

quantity of secretion, or modify its chemical composition, two principal circumstances must be kept in view. It must be recollected that the secreting organs are merely the agents by which the material is separated from the blood, and the amount of the secretion will depend on the circulation through them, and the healthy state of their nervous supply. The separated matters themselves, however, do not originate here: they are derived from the transformations of tissue, which are constantly proceeding, with greater or less rapidity, in the body at large. Medicines, therefore, which affect secretions, must do so in one of two ways; either they must act upon the nervous centres, increasing or diminishing their influence upon the organs, and modifying the circulation through them, or, in the words of the chemist before quoted, 'they must take a direct share in the change of matter in the body,' or 'exert an influence on the formation, or on the quality of a secretion by the addition of their elements.'" P. 6.

This statement of Liebig's views of the operation of medicines, is, perhaps, sufficiently "plain to him that understandeth," but it may be questioned whether the generality of the readers for whom this volume is chiefly intended, will derive from it that clear view of the subject which its importance demands. For, that the subject is one of the highest interest and importance cannot be denied; and though we may not as yet be in a condition to make any very satisfactory practical application of these doctrines in the selection and use of individual medicines, we have no hesitation in asserting our belief that, organic chemistry has pointed out to us the path to pursue in our therapeutic enquiries. The chemical evidence which has been adduced of the specific influence exerted by remedial agents on particular tissues, by modifying the healthy processes going forward in them, in virtue of certain chemical relations existing between the tissues and the products from them on the one hand, and the medicinal agent on the other, derives strong confirmation, both from recent experiments on the action of poisons and from clinical observation. We have, it is to be feared, been in the habit of confining our attention far too much to the more immediate and ostensible effects of our remedies; and whilst our treatises on Materia Medica and Therapeutics are full of references to the purgative, emetic, stimulant, sedative, and other of the more rude and manifest operations of medicines, there has been too great a disposition to deny, or discountenance, all statements with reference to the specific influence of particular remedies on definite forms of morbid action. However much there may be of fiction and delusion in the statements of the Homœopathists concerning the specific adaptation of their infinitesimal doses of particular medicines to forms of disease denoted by special symptoms, we are inclined to believe that legitimate medicine may, in this respect, as well as in some others, have cause to admit that the author of the "Organon of Rational Medicine" has done good service to the healing art. Amidst all the vagaries and delusions of Homœopathy, Hydropathy, and even Mesmerism, we must not forget that "fas est, et ab hoste doceri." Undoubtedly many of those medicines whose therapeutic virtues are most to be depended on in the diseases for which they are chiefly administered, are of the class which afford the strongest confirmation of the views which refer their curative agency to their adaptations to modify the molecular changes going forward in the tissues and organs assumed to be the seat of disease.

The characters and operation of the various classes of medicinal agents

are briefly discussed under the ordinary heads of Tonics, Stimulants, &c., and although there are here not a few statements to which exception might be taken, the remarks are, for the most part, useful and judicious. We think, however, that the conditions of system calling for the use of medicines of a particular class and general rules for their exhibition, should have been stated more definitely, and at greater length. Under the head of Narcotics, for example, the remarks are so very general as well as brief, as to fail of giving the student the requisite assistance in their therapeutic employment. But, to enable our readers to judge for themselves of the character of this part of the volume, we extract the entire section, headed "*Narcotics.*"

"*Narcotics* are remedies which lessen the manifestation of vital phenomena dependant upon the nervous system, especially deadening sensibility and diminishing the motor power, more, however, by reducing the energy of voluntary effort than by paralysing the parts concerned. Their full operation is sleep or coma. *Opium* is the type from which most descriptions of the class have been drawn; but although many narcotics agree with it more or less, yet there are peculiarities to be remarked in the action of each. It is generally supposed that they are primarily stimulant; but this part of their action is very trifling, as these medicines are ordinarily prescribed. So great a stress, however, does Dr. A. T. Thomson lay upon it, that he attributes the sedative effect to the consequent collapse. 'Narcotics,' he says, 'strictly so called, operate as diffusible excitants: and this so decidedly, that, by regulating the doses and the repetition of them, the sleep which generally follows their administration may be altogether prevented, and the exciting influence of the medicine only be obtained; now, the effect of a direct sedative is an immediate depression of the powers of the system without any apparent previous excitement. The symptoms of collapse which follow those of excitement, after the administration of a narcotic, are the consequence of the excitement.' This is an opinion by no means generally held; and though, in some instances, the stimulant operation cannot be denied, yet we are rather disposed to regard the two actions as distinct, than as consequent the one upon the other. It would be foreign to our purpose to enter at any length upon the manner in which narcotics manifest their action upon the several functions of the body, differing as they do in this respect among themselves. Suffice it to say, that, as a part of their general sedative influence upon the nervous system, they diminish the secretions of the liver and kidneys, arrest more or less the performance of those functions which severally attach to the different parts of the alimentary canal, retard digestion and constipate the bowels, both by lessening the secretions poured into them, and rendering their movements sluggish. The difference of operation of the several members of the class will be most conveniently considered when they come under special review. All we will observe at present is, that some dilate, while others contract the pupil; some appear to concentrate their sedative action more particularly upon the functions of the encephalon, others upon the contractile power of the alimentary or bronchial tubes, while a strict distinction is to be drawn between those which occasion constipation and those which do not; all these things being of great practical importance. As in the case of the two former classes, we are of opinion that the primary action of narcotics is exerted upon the nervous centres, but concentrated most especially upon the brain.

"The objects which are mostly in view in the administration of narcotics, are the production of sleep, or the alleviation of pain and spasm. The former is sometimes a most important point to be attained; and, though pain is frequently nothing more than the effect of increased vascularity in a part, it is, nevertheless, a symptom for which the practitioner is often specially required to prescribe, and where there is nothing of this nature to occasion it, the use of narcotics is par-

ticularly indicated. Their anti-spasmodic value rests upon the same ground with their utility as anodynes." P. 12–14.

The therapeutical is followed by a chemical introduction by Dr. Garrod, which, however, is an introduction only to organic chemistry. For this Dr. G. apologizes by stating that—

"It does not come within the limits of a work like the present, to enter at large into chemical minutiæ; and we must therefore pre-suppose in our readers a general knowledge of the principles at least of inorganic chemistry; and the object of the present introduction will be to give a concise statement of the principles of the organic branch of the science, and to furnish a connected view of the composition and leading properties of the compounds contained in the vegetable department of the Materia Medica." P. 32.

Why a general knowledge of the principles of organic as well as of inorganic chemistry should not be presupposed in those who are studying Materia Medica, we are at a loss to understand. An apology was more needed for the introduction of the one than for the omission of the other. Both are altogether out of place in any work on Materia Medica and Therapeutics, and more especially in one of the present character, professing to confine itself to the leading facts and doctrines of the science. Besides, "the composition and leading chemical properties of the compounds contained in the vegetable department of the Materia Medica," are necessarily given under their respective heads. However well qualified, therefore, the author of this introduction may be (as we willingly admit that he has shewn himself) to give a good summary of the science of organic chemistry, which may be highly useful to both student and practitioner, its introduction into the body of a manual of Materia Medica can be accounted for only on the supposition that the author has allowed his better judgment to be blinded by his love for a favourite science.

None but those articles which are rendered officinal by the London College being admitted into the body of the work, the inorganic Materia Medica is comprised in 90 pages; the articles being arranged according to their chemical relations. We have been much surprised to find that the proportions of the various articles entering into the composition of the Galenical preparations, are almost invariably, and evidently by design, omitted. This is undoubtedly a signal defect, of which we fancy the young gentlemen preparing for Apothecaries' Hall, if none others, will have just cause to complain. Under the head of Arsenic, for example, the following is all that is said of—

"*Liq. Potassæ Arsenitis.*—(Arsenious Acid and Carbonate of Potash, dissolved in water, and coloured with compound tincture of lavender.) It is more fitted for internal use than the solid acid, as it may be much diluted and rendered thus less irritating to the stomach." P. 126.

Now as this preparation is incorrectly designated in the London Pharmacopœia, and as the excess of alkali very materially modifies its chemical relations, a knowledge of the proportions of arsenious acid and carbonate of potash entering into its composition becomes important.

There is a similar omission of the synonyms of the medicines, with many of which it is absolutely necessary for every medical man to be ac-

quainted. Even of those that are in common and daily use, there are not a few of which the student may fairly be supposed to be ignorant, and expect to be informed of, in such a work as this, especially those synonyms which have been but recently replaced by the present names.

Each article is described under the following heads: Physical Properties, Preparation, Chemical Composition, Chemical Relations, Operation and Uses, Dose and Officinal Preparations. The chemical composition and relations are given for the most part, though very succinctly, with great clearness, and illustrated frequently by diagrams. In many instances, however, both the composition and the special therapeutic adaptations of the officinal preparations are very imperfectly stated. As an illustration we subjoin the—

"*Mist. Ferri Composita.*—(Myrrh, carbonate of potash, sulphate of iron, and spirit of nutmeg, sugar, and rose-water.) The alkaline carbonate re-acting on the sulphate of iron, gives rise to the carbonate of iron in the mixture. It is a very valuable preparation; its slightly stimulating properties rendering it highly useful in some cases of anæmia and in amenorrhœa. Its constipating effect may be obviated, by the combination of some decoction or extract of aloes with it, while its stimulating action upon the pelvic viscera is augmented." P. 121.

Now, from this, the student would certainly not gather either the chemical, or therapeutic peculiarities, of this very useful preparation. Some reference should undoubtedly have been made to the important part played by the sugar and the excess of alkali, both as regards the chemical constitution and therapeutic virtues. Distinct reference should also have been made to the changes which the mixture undergoes by exposure to the air.

The vegetable Materia Medica is preceded by a brief sketch of the natural classification of plants, in which are given the principles of botanical classification, the leading characters of the classes, sub-classes, and orders, with illustrative diagrams, on the plan adopted by Professor Lindley in his School Botany, and intended to aid the student in comprehending the essential structure of the flower in each natural class. With reference to this Botanical Introduction, (as well as to a similar one, preceding the Animal Materia Medica, in which a sketch of the classification of the animal kingdom is given,) the same remarks apply, which we have felt called to make, when speaking of the chemical part. And certainly if it be desirable to give (as perhaps it may) the essential botanical characters of the various orders of plants, they would have been far more naturally and usefully inserted, after the headings, under which the substances derived from each class are given. Of the diagrams we cannot avoid observing that, if intended for those only who have learnt their botany from Dr. Lindley and his writings, they were not needed; and, if for others, some farther explanation is required, than what is afforded by the foot-note, in order to render them available for the purpose for which they were intended. Of the meaning of the algebraic symbols given to illustrate the characters of the flowers in the two grand divisions of Exogens and Endogens, we are fain to confess our entire ignorance. We will venture to say, that nineteen-twentieths of our readers will be greatly puzzled to know what is meant by "Flowers $^{\infty}\sqrt{}$" or "Flowers $^{3}\sqrt{}$" We object not to the employment of such symbols, which may be very

convenient and useful, but as they are purely arbitrary, every one who employs them is bound to tell us what they mean.

We had noticed various inaccuracies in reference to both the commercial and botanical sources of some drugs, but our space warns us not to attempt any detailed criticism of this kind. We may mention, however, that East Indian Kino is not obtained, as here stated, from the Nauclea Gambir, but from a species of Pterocarpus; not P. Erinaceus, as was at one time supposed, but P. Marsupium. All the varieties of Catechu are spoken of as derived from Acacia Catechu, whereas, it is well known, that they are obtained from at least three distinct plants—the Areca Catechu, and Uncaria Gambir, as well as the Acacia Catechu.

Again, under the head of Cinchona scarcely any attempt appears to have been made to refer the various commercial articles to their right sources. Aconite is referred to the species napellus, but as the London Pharmacopœia (though perhaps without any sufficient grounds) refers it to paniculatum, this ought at least to have been mentioned, and accompanied with the statement that it is scarcely ever to be met with in the British market. Where, as in the case of Hemlock, the plant is frequently confounded and mixed with others, some notice of these should have been given. We subjoin a specimen of this part of the work.

VALERIANA (*Radix.*)

"DESCRIPTION.—*Form*, a short tuberose rhizome, from which radical fibres come off, three or four inches in length, which are the officinal part. *Colour*, yellowish-brown when dry. *Odour*, fœtid and peculiar, and not disagreeable in the fresh plant. *Taste*, warm, camphoraceous, and nauseous.

"CHEM. COMP.—Its most important ingredients are, *volatile oil*, *valerianic acid*, *resinous* and *gummy* matters.

"The *volatile oil* is obtained by distillation of the root with magnesia, in order to fix the valerianic acid. It is of a light-green colour, and lighter than water, having the odour of the valerian. See Appendix.

"The *valerianic acid*, when set free from the magnesia by sulphuric acid, occurs as an oily liquid, having an odour similar to the oil, but an acrid acid taste. It is probably formed by oxidation of the oil. It can be procured artificially by oxidation of the *oil of potatoes* or *grain spirit*, to which it stands in the same relation as ascetic acid does to alcohol. It forms soluble salts, with bases, as oxide of zinc and quinine, which have lately been introduced into medicine. *Formula*, $HO+C_{10}H_9O_3$.

"OPER. AND USES.—Valerian is stimulant and anti-spasmodic. We have found it of some value in removing the *paroxysms of headache*, which occur in atonic dyspepsia anæmia. It has obtained a reputation in convulsive affections, as *epilepsy*, *hysteria* and *chorea*. We have seen it of service in hysteria, but never in epilepsy.

"DOSE.—ʒj—ij.

"OFF. PREPS.—*Infusum Valerianæ*. (Valerian macerated in boiling distilled water, and strained.) *Dose*, f ʒ j—ij.

"*Tinctura Valerianæ*. (Bruised valerian macerated in proof spirit, and strained.) *Dose*, f ʒ j—iv.

"*Tinctura Valerianæ Composita*. (Bruised valerian macerated in aromatic spirit of ammonia, and strained.) *Dose*, f ʒ ss—ij. More stimulant than the two former preparations." P. 265.

In the remarks which we have been called to make, we have had no wish to detract from the real merits and utility of the volume before us. In pro-

portion, however, as the knowledge, which a work like the present is intended to impart, is condensed, it ought to be accurate, and in proportion as the limits allowed are restricted, they should be occupied with the proper and legitimate objects of materia medica. If, instead of introducing subjects which do not belong to the science, the authors had devoted more space to the characters and medicinal virtues of the different substances and to the special indications they are calculated to fulfil, the volume would have been more useful to both the medical student and practitioner, and might have claimed a higher character. The merited reputation of the authors, led us, perhaps, to form higher expectations of their work than we ought, or than have been realized. An unfavourable impression, as it regards the care and attention which have been bestowed in its compilation, is necessarily produced by finding, at the end of the volume, a "list of preparations omitted," and this impression is not removed by such faults of style as the following. "Purgatives are medicines which, within a short, or given time, after exhibition, produce the evacuation of the *bowels*, whether *they* have been received through the stomach or applied more immediately to the rectum."—P. 19. "The effects of wine upon the system call for but little description. *They* resemble very closely those of spirit, but *it* appears to exhilarate the mind much more than the *latter*, before its intoxicating operation is manifested."—P. 195. Such faults, in some instances, have rendered the meaning obscure, if not unintelligible. The book, however, as a whole, is creditable to its authors, and will doubtless be acceptable and useful to many persons; and if, as will probably be the case (unless some other similar work should appear,) this should come to a second edition, we are quite sure that its authors are capable of greatly improving it, and adapting it more completely to the purposes for which it is intended.

SCHOENLEIN'S KLINISCHE VORTRÄGE IN DEM CHARITÉ-KRANKENHAUSE ZU BERLIN: Redigirt und herausgegeben von Dr. *L. Guterbock*. Zweite Auflage. 8vo. pp. 480. Berlin. 1842–4.

Schoenlein's Clinical Lectures in the Infirmary at Berlin: Edited and published by Dr. Guterbock. Second Edition.

IN our last Number we gave a lengthened notice of the first half of this valuable series of clinical reports, affording our readers an ample opportunity of becoming acquainted with the opinions and practice of one of the most accomplished physicians upon the Continent. The subjects, to which attention was then more specially directed, were Typhus Fever, and Inflammation of the Lungs and Pleuræ. Those, which will now occupy us, are of a more varied character: and first of Acute Rheumatism.

Schoenlein very properly remarks that, in every case without exception of this malady, the state of the Heart and Lungs should be carefully examined; as, not unfrequently, there is an almost entire absence of all the *subjective* phenomena that are indicative of a lesion of these organs, and it is only by a diligent and repeated auscultatory exploration that we can

arrive at any satisfactory knowledge. Hitherto, in such cases, the Heart has been more attended to than the Lungs; but the condition of both organs should be most narrowly watched; for there seems to be often as great a tendency to the supervention of Pneumonia or Bronchitis as of Carditis. Hence the importance of daily examining the respiratory sounds in the inter-scapular region, and of regularly ascertaining the state of the breathing in different attitudes and positions of the body. (Our readers will doubtless remember the observations of Dr. Latham upon this subject: *vide* the Number of this Review for July, 1845.) The matter of *perspiration* has usually a very peculiar acid smell in Acute Rheumatism; and we need scarcely say that the *urine* is always deep-coloured, and in most cases highly charged with the lithates of Ammonia and Soda. On this subject, we meet with the following remarks:—

"In rheumatism not only the urine, but other secretions also, as the perspiration, and even the matter of an abscess or ulcer, are found to contain an excess of acid matter. In one of Schoenlein's patients, the surface of an ulcer was observed to be covered with a layer of genuine crystalline matter, during the course of one night. We have good reason, therefore, to believe that lithic acid exists in the blood; for we know that it is present in much greater quantity than usual in the urine, and also in the matter of perspiration; it has also been found in the contents of rheumatic abscesses."

Now the knowledge of these facts is not only of theoretical, but also of direct practical, value; for, as long as the Perspiration has a distinct sour smell, and the Urine is abnormally acid, we may be assured that the morbid process, existing in the system, is not at an end. We cannot, therefore, urge too forcibly upon our readers the importance of attending to these phenomena. The disappearance of the local symptoms is often apt to mislead the medical attendant as well as the patient himself; and thus, perhaps, recourse may be had to the use of warm *baths*, whereby only a stronger impulse is given to the recrudescence of the disease. If there be a deficient elimination of the acid matter, present in the system, by the natural emunctory, the kidneys, the tendency of Endocarditis supervening, and of its occasioning deposits upon the cardiac valves, will be thereby much increased. Touching this point, it is worthy of notice that the absence or deficiency of the deposit in the urine, without being followed by cardiac lesion, is more frequently observed in women than in men.

The occurrence of a Miliary eruption on the *skin* in cases of acute Rheumatism is considered by our author to be, upon the whole, an unfavourable symptom. "I remember," says he, "that during one season, all the rheumatic cases were accompanied with this cutaneous complication, and that the cases so frequently proved fatal, that the eruption was regarded in the light of a plague"—a circumstance reminding one of the *febris sudatoria* that was so prevalent in the 15th and 16th centuries. The difficulty in the treatment of such cases consists in keeping the patient in an equable temperature, guarding him from cold on the one hand, and from excessive perspiration on the other.

As exerting a decided derivative action upon the bowels and kidneys (the best method of checking the threatened development of Miliaria,) Schoenlein is in the habit of ordering a table-spoonful of the following mixture to be taken every two hours:—

℞. Infus. herb. Digitalis (℈ ss) . . . ℥ vj.
Nitri . . . . . 3 j.
Tinct. semin. Colchici* . . . . 3 ij.
Syrupi Simpl. . . . . ℥ j. M.

In the *treatment* of acute Rheumatism, our author appears to trust chiefly to the use of direct antiphlogistic remedies, such as blood-letting, tartar-emetic, and so forth. We observe no mention made of the use of Mercury, even when cardiac or pulmonary inflammation has supervened. This we consider a great and serious omission in the practice of our Continental brother; although his opinion is shared, we know, by several modern writers in our own country.

When a Miliary eruption makes its appearance, Schoenlein recommends that the skin be bathed with an alkaline lotion. This he considers the best means to prevent the retrocession of the exanthem; and he greatly prefers its use, either to more active external stimulants applied to the skin, or to the internal exhibition of Camphor and Ammonia, as recommended by many authors. The alkaline wash has the advantage of not causing too much excitement of the skin, and yet enough to prevent the retrocession of the eruption; at the same time, it serves to neutralise the excess of acid matter that is secreted by the surface of the body. From a drachm to half an ounce of the caustic potash in a pint of water will be about the average strength of the lotion that should be used. It is to be applied tepid at first, and then gradually cooler and cooler. The irritability of the skin must regulate the strength of the solution to be employed; all that is required is, that it should produce a feeling of slight heat and pricking of the surface. The more profuse the perspiration is, the more frequently should the application be made. By the use of this wash, the eruption will speedily pass into the stage of exsiccation.

It is certainly very rare that genuine rheumatic inflammation ever terminates in the production of purulent matter. In cachectic states of the system, when the disease affects the synovial membranes of the joints, this termination has been observed to occur more frequently than under other circumstances. Whether the inflammation of the muscles in the following case was really and truly rheumatic, is doubtful.

CASE 19. *Rheumatism of the Abdominal Muscles—Concentration of it in the Pyramidales—Discharge of Pus from the Rectum—Recovery.*

A robust plethoric man, 22 years of age, was seized, after exposure to cold, with a sharp pain over the *symphysis pubis;* it was much increased by pressure and motion: shortly afterwards, some degree of strangury came on. He was bled, both generally and locally. Still the pain in the pubic region continued, although the urinary distress was relieved. The

* Schoenlein is of opinion that Colchicum (especially the tincture and wine of the seeds) is of marked efficacy in articular, but not in muscular, rheumatism. Its primary action, he says, is upon the intestines, and not, as Chelius supposes, upon the urinary organs. He has not found that it occasions the separation or excretion of the rheumatic sediment (in the urine, we presume—*Rev.*;) nor does he consider that purgation is necessary to its curative action.

case was regarded as one of inflammation of the abdominal muscles (chiefly the *pyramidales*) with a tendency to its extending to the peritoneum: just as we not unfrequently observe that Pleuritis is preceded by a rheumatic affection of the thoracic muscles. When the *recti* or *pyramidales* are the seat of inflammation, it is apt to terminate in suppuration. In such cases, the pus is apt to have a somewhat urinous smell;—a circumstance which might occasion great alarm to the medical attendant, if he was not aware that it may occur without any lesion of the bladder; it is the result of the process of Exosmosis. (A similar remark has been made in cases of Abscesses situated near the rectum: the matter has sometimes a decidedly fæcal odour, although no direct communication exists between the gut and the abscess.)

Although the inflammatory symptoms were much mitigated by the means employed, there was a constant tendency to their recrudescence: from this circumstance, it was suspected that the case would terminate in suppuration. For some days, the patient was distressed with tenesmus; after straining one morning at stool, a quantity of purulent matter passed, with great relief to this symptom.* From this date, the patient's health rapidly recovered.

CASE 20. *Rheumatism of the Abdominal Muscles—Peritonitis terminating in Exsudation—Removal of the Inflammation—Gradual Disappearance of the Swelling occasioned thereby.*

A woman, 28 years of age, was seized with sharp pains in the hypogastrium; at first they shifted about; but at length they became fixed in a spot equi-distant between the ant. superior spine of the right ilium, the umbilicus, and the symphisis pubis. There was considerable tumefaction of this part; and a sense of fluctuation was perceptible in it. The patient had at first suffered from vomiting, and subsequently from a somewhat obstinate constipation. On examination *per vaginam*, no connection between the uterus and the swelling could be detected. The opinion which M. Schoenlein formed of the case was, that at first there was a rheumatic affection of the abdominal muscles; subsequently that the peritoneum, investing not only these muscles but also the intestines, had become inflamed; and that the result of this inflammation had been the effusion of purulent matter, probably between the abdominal and intestinal layers of the peritoneum. There was more than once a recrudescence of the pain in the swelling, accompanied with very considerable febrile reaction, nausea, &c.; the symptoms were always relieved by leeching, fomenta-

* Schoenlein remarks that, whenever, under such circumstances as the present case, the local suffering becomes much abated, while the febrile reaction continues but little abated, and assumes perhaps a remittent character—having distinct morning remissions and evening exacerbations—the physician ought to be on his guard as to the prognosis which he forms. In one case of rheumatic inflammation of the abdominal muscles the local symptoms entirely subsided, but the fever remained. In a few days, the catastrophe arrived: a quantity of pus was voided from the rectum and bladder. An abscess had formed in the pelvis, communicating with these two viscera.

tions, and so forth. One day, a sense of tenesmus and dysuria was experienced; but no globules of pus could be detected in the urine with the aid of the microscope, although there was a considerable mucous sediment in it:—"it is no vain parade or charlatanery," our author here remarks, "to examine morbid products chemically and microscopically." The patient was at this time under the influence of mercury; a very considerable portion of mercurial ointment having been rubbed in around the seat of the abdominal swelling. As the feeling of tenesmus returned, it was thought advisable to ascertain the state of the *rectum* by a manual examination. Upon doing this, a distinct swelling was felt on the right side of the gut, intruding considerably into its cavity; the swelling was perceptible from the vagina also. It was deemed prudent not to make any incision into it, but rather to leave it to Nature, in the hope of its contents (if any) becoming absorbed.

After the patient had been in the hospital for upwards of a month, she left it almost quite convalescent. The abdominal tumour had disappeared, and that in the rectum was very much diminished. The rheumatic sediment in the urine, and the tendency to evening feverishness, had continued until just before the period when she went out.

In the *case* which is next reported, a violent Peritonitis occurred in a young woman, who had been suffering from acute rheumatism of the abdominal muscles, and had left the hospital before she was completely well. Notwithstanding the most active antiphlogistic remedies, the inflammation terminated in exsudation of lymph, and the effusion of a sero-purulent fluid. No trace of that crepitating sound, which Dr. Bright has said may be generally found by pressure upon a part where plastic exsudation has taken place in the abdominal cavity, could be perceived; and, indeed, we cannot regard this (alleged) phenomenon as at all a trustworthy symptom of the lesion in question. The left iliac region was still considerably tumefied and tender, and it gave out a dull sound upon percussion. The patient was treated with *infus. digital.* and alkalis internally, and with mercurial ointment, to which some hydriodate of potash was added, externally. Things appeared to be going on somewhat more favourably than could have been suspected, when the vomiting and other unpleasant symptoms returned in consequence of an irregularity in diet, which the patient committed; the rejected matters were of a green or brown colour. At length the patient died on the 19th of June, four weeks after her admission into the hospital. On *dissection*, the abdominal viscera were found to be extensively agglutinated to each other by the exsudation partly of a fibrinous, and partly of a tuberculous nature. The descending portion of the colon was found to have become ruptured, and to have given passage to the intestinal contents into the cavity of the pelvis.

We pass on to some illustrations of Puerperal Diseases.

In a case of violent puerperal Peritonitis, which was subdued by active antiphlogistic treatment, it was found, towards the decline of the inflammation, that the urine deposited a sediment of genuine purulent matter, as ascertained by chemical and microscopical examination. This pheno-

menon is not very rare,* according to our author. "I am far," he says, "from attributing this elimination of pus to the Digitalis which was prescribed yesterday; although I may remark that I have observed a similar phenomenon in cases of Empyema, after the exhibition of this medicine. The occurrence of this phenomenon is of the greater importance in a prognostic point of view, as it shows how far the inflammatory process has advanced, and in what stage it exists. * * * * It is not uncommon in puerperal Peritonitis, that circumscribed purulent deposits form in the folds of the uterine ligaments, the ovaria, and Fallopian tubes: their existence can seldom be ascertained during the life of the patient. The appearance of pus in the urine is a fact of the utmost value in reference to our diagnosis: it is, as it were, a finger-post indicating the *stadium* of the inflammation."

Dr. Guterbock remarks, that it is still a difficult problem in Physiology, to determine in what manner purulent deposits are eliminated from the system along with the urinary secretion. We can scarcely imagine, he says, any other means of transit than the veins. If we admit, with some physiologists, that the globules of pus are too large to circulate with the blood through the capillary vessels, we must suppose that the purulent matter in its primary seat becomes partially dissolved, that it enters the blood in this thinner state, and is again separated from it in the kidneys as genuine pus. (*Vide* Müller's Physiology.) The first assumption in this theory is of very questionable accuracy; as globules, of the size and form of pus-globules, have been repeatedly seen in the blood by various observers; these, Dr. G. is inclined to regard rather as epithelial cells of the vascular parietes than as lymph-globules, as some imagine. We must however, taking all circumstances into account, admit that it is by no means easy to account for the admission, in the first instance, of pus-globules into the blood, and for their subsequent elimination from it.

The 24th case is a very interesting example of Typhoid Puerperal fever, or *metritis septica*, as Boer calls it. The symptoms at first were very decidedly phlogistic, and required active depletion. As they subsided, the lochia became fætid, and *phlegmasia alba* made its appearance in the right thigh. The occurrence of this malady clearly showed that the venous system had become affected; no fewer than seven abscess-like swellings might be traced along the trajet of the femoral vein. At a later period, the basilic vein of the right arm, in which the patient had been bled, and one of the veins also of the left foot, exhibited symptoms of phlebitis. Purulent infection of the system soon manifested its presence by its characteristic shiverings, recurring at irregular intervals, and followed by flushes of heat, but without any distinct crisis. The patient too was now distressed with various pulmonic symptoms, which were, in all probability, connected with the formation of circumscribed abscesses in the tissue of the lungs.

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* In a subsequently reported case, which also did well, the urine deposited a sediment, which was found on examination to contain purulent matter. It would seem, therefore, that pus may be eliminated from the system by the kidneys. The knowledge of this fact naturally suggests the importance of attending to the urinary secretion in all cases, where we have reason to suspect the occurrence of purulent infection of the constitution.

The following description of the morbid appearances in the veins of the uterus, &c., found on *dissection*, will be read with interest:—

"The veins of the uterus and ovaria were, almost throughout their whole length, filled with pus. The inferior cava, near its transit by the liver, contained a puriform exsudation. In the entire right iliac vein there was a plastic tubular exsudation, and within this was found some gelatinous matter. The *trombus* extended as far as the middle of the crural vein, and from it into the smallest ramifications of the superficial vessels, the parietes of which had become so much thickened, that they resembled arteries more than veins. The veins of the right leg and foot were enlarged and thickened, but did not contain any lymph or pus within. The same appearances were observed in the right arm, and also in the veins of the abdominal parietes on the right side."

(The phenomena, constitutional as well as local, of these cases of purulent Phlebitis, remind the reader, in some respects, of the history of Glanders, and such like septic diseases.)

Schoenlein lays much stress upon the exact seat of the tenderness and pain in the hypogastrium, in enabling the physician to determine whether the case be one of Metritis or Phlebitis uterina. If the pain be uniformly felt over one of the sides or lateral edges of the uterus, and not over its body or central part, we have reason to suspect that the veins are affected; as it is in the region indicated that the *plexus pampiniformis* is situated. The pain often extends from this spot to the side of the pubis and the labia, in the direction of the round ligament. When shiverings come on at the same time, there is good ground to apprehend that purulent Phlebitis has already commenced.

Uterine Phlebitis is rarely met with, except in the puerperal state. Schoenlein has, however, seen more than one case in which it occurred in young girls, in whom retention of the catamenia had taken place in consequence of an imperforate state of the vagina. He alludes to two cases, where, after Textor had divided the obstructing membrane, symptoms of venous inflammation set in. This morbid condition is also apt to occur in cases of scirrhous, and other diseased, growths of the substance of the uterus: likewise when ill-conditioned ulcers or abscesses form about its cervix, or in the vagina; and, according to Boer's observations, when even slight ulcerations occur on the inner surface of the uterus, where the placenta had been attached. The prognosis is always very unfavourable, and especially if any shivering fits have set in. Schoenlein has never seen a case recover when these symptoms have occurred. The death will ensue in from two to twelve days after this event. The physician must never allow himself to form a favourable opinion from the mere circumstance of the subsidence of the hypogastric pain and tenderness; as long as the pulse remains rapid, and a feverish state of the system continues, he cannot (our author somewhat drolly remarks) with propriety sing *Te Deum*. We occasionally meet with, upon dissection, distinct purulent phlebitis of the uterine veins, although little or perhaps no distress had been experienced in the region of the womb during life—another argument to shew the necessity of a guarded prognosis.

The 26th case is one which exhibited the usual symptoms of Typhus gavior: it proved fatal. On dissection, no morbid appearance whatsoever

was observed in the abdominal or cephalic viscera. There was however purulent Phlebitis in one of the veins of the right arm—the inflammation having commenced in, and spread from, the wound made in venæsection.

The 27th is a very interesting one; it is headed—

Peritonitis—Attacks of Shivering—Inflammation of the Vena Portæ—Death—Dissection—Remarks on the Inflammation of the Portal Vein in general.

The patient was a man 26 years of age. When admitted into the hospital, he was complaining of a violent pain in the epigastrium; it shifted its locality a little in different positions of the body. Pyrexia, diarrhœa, great thirst, and a high-coloured state of the urine present. The case was regarded as one of Peri-enteritis, and treated accordingly. On the third day, there was a well-marked shivering fit, followed by heat, but not by perspiration. Schoenlein says that he suspected the commencement of some mischief in the Portal system of veins. The rigors returned at irregular intervals; on some days there were several attacks. The treatment consisted in the inunction of mercurial ointment, the application of fomentations, and the internal use of calomel: the patient was speedily and rather severely salivated. Dr. S. assures us that, in several cases of lesion of the portal system, he has observed decided benefit from the use of saline baths (two pounds of common salt, and one ounce of muriate of lime being added to a usual bath; and he accordingly ordered them for this patient.* The icteric and febrile symptoms however continued to exist, and indeed gradually to become worse. The patient died in the course of about two months.

Dissection.—On opening the abdomen, an abscess was found about midway between the umbilicus and the point of the sternum (the seat of the pain during life;) it was situated between the layers of the mesocolon. The abscess extended backwards in the direction of the Vena portæ. This vessel was found to be considerably enlarged, and, when laid open, to be filled with pus. The matter extended into its ramifications, the inner membrane of which was observed to be decidedly thickened. The parenchymatous substance of the liver was not affected.

In his comments upon this case, Dr. Schoenlein directs the attention of the reader to that aphorism of Hippocrates, wherein it is said—"Those, who suffer with violent fevers, rarely recover, if a shivering occurs on the sixth day." Our author regards the occurrence of this phenomenon, under such circumstances, to be a probable indication of the commence-

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* Dr. Schoenlein says that he has found that the action of Mercury (and of Syphilis also) upon the system is much promoted and accelerated by the agency of muriatic salts, even in the form of saline baths. Hence it is that, in many places where the atmosphere is very saline, the employment of mercury in the treatment of the venereal disease is highly injurious. I observe this, he adds, at Venice, where the medical men are certainly very unsuccessful in the treatment of this disease with all mercurial preparations: indeed, any Venitian, anxious to get rid of the disease, should leave the place, and retire to the highlands of Lombardy. It has been remarked, that nowhere do we see so many people who have lost their noses, as in the city of the Lagunes.

ment of Phlebitis somewhere. As to the *symptoms of inflammation of the portal vein*, one of the most constant is (as far as we can well judge from our hitherto limited experience) a heavy oppressive pain about midway between the point of the ensiform cartilage and the umbilicus, and often, it may be, extending backwards in the direction of the spine: it is always increased by firm pressure. The usual signs of the biliary secretion being more or less imperfectly performed are generally present. Occasionally, blood is passed with the stools: indeed, Dr. S. is of opinion that the disease of Melæna is not unfrequently connected with the lesion, which we are now describing. The accompanying fever is usually violent—the *causus* of the ancient writers. Should the inflammation terminate in the formation of purulent matter, the fever will necessarily assume more of a typhoid, or perhaps of a hectic, character. If, in place of pus, plastic lymph is effused into the cavity of the inflamed vessels, the superficial abdominal veins are apt to become very considerably dilated, and the spleen also to be so much distended that, in the course perhaps of a few days, it may be felt outwardly to be excessively enlarged. When this is the case, we may expect to have all the usual symptoms of splenic disease; viz., tendency to syncope, confusion of sight, hæmorrhage from the left nostril, acid eructation or vomiting, and, subsequently, hæmorrhage from the bowels, which is almost always accompanied with extreme prostration. In one case, which has been described in Schmidt's Journal, (1840,) Schoenlein found, upon dissection, all the veins of the portal system almost quite obliterated.

Before quitting the subject of diseases of the Liver, we may introduce a few remarks on the—

Slowness of the Pulse in Icterus and Hepatitis.

Schoenlein alludes to this circumstance on more than one occasion. In one of the cases of jaundice that are related, the number of beats did not exceed 30 in the minute. Frank has remarked that, even in active inflammation of the Liver, the pulse often does not exceed, and not unfrequently is below, the normal standard, although the other pyrexial symptoms are well marked; and he therefore cautions medical men not to allow themselves to be deceived by this occurrence, in their diagnosis of the disease. It is more than probable, that this diminution of the heart's activity is occasioned by the admixture of the pigment of the bile with the blood; for, we well know that, the absorption of this matter into the circulation has a marked sedative action on all the vital functions.

Our readers may like to know the treatment pursued by Schoenlein in jaundice. In one of the reports we find the following prescription:—

Local blood-letting from the hepatic region—inunction of mercurial ointment upon the same part—purgative enemata—and this mixture, with the view of acting upon the bowels and kidneys at the same time

℞. Infus. herb. digital. (℥ss.) . . . ℥iv.
Tart. natronati . . . . . ℥j.
Mellag. graminis . . . . . ℥j.
Aquæ laurocerasi . . . . . ℥j. M.

A table-spoonful to be taken every two hours. Tamarind-whey to be used as ordinary drink.

Towards the decline of the disease, a mixture, composed of *decoct. rad. Graminis, extract. Taraxaci, and liquor kali acetici*, was ordered.

The object that is sought, by the administration of Digitalis in jaundice, appears to be the elimination of the colouring matter of the bile by the kidneys, the secretion from which is usually much increased by this medicine. It has been said by some writers that the pulse is apt to rise under the use of Digitalis in this disease—a circumstance which, if really true, may be accounted for by supposing that, in proportion as the bile is separated by the urine from the blood, so will the action of the heart be relieved from the *incubus* that rests upon it.

It is always judicious practice to keep up free evacuations from the bowels and kidneys, whenever the biliary excretion is interrupted; as the chief danger of such obstruction is the rapid supervention of alarming cephalic symptoms.

In *Colica Pictonum*, the constipation of the bowels is doubtless owing to the same cause, as the paralytic weakness of the muscle of the extremities, that is so frequently met with after poisoning from the salts, not only of Lead, but also of Copper and Arsenic. There occurs, under such circumstances—we have every reason to believe—a lesion not only of the irritability, but also of the very substance, of the muscular texture; and indeed upon this organic change, medical jurists have, of late years, laid considerable stress in cases of poisoning from the last-named metal. In cases of Lead Colic, the longitudinal fibres of the Colon have been observed to have undergone a very perceptible change. In the present instance (one of inflammatory *Ileus* in a person who had previously suffered from lead colic,) there is most probably not a short and circular, but a wide or diffused, constriction of the gut. The patient was bled and leeched, and an injection with castor-oil was administered. Scarcely anything was administered by the mouth, except a few drops of a solution of Morphia, to check the vomiting. The severe symptoms were relieved for a short time, but a fatal collapse speedily supervened. On *dissection*, the transverse Colon was found to be completely obstructed, in consequence of an angular twist, which entirely prevented the passage of its contents downwards. The parts exhibited the marks of an old adhesive inflammation. The longitudinal fibres of the gut were observed to be atrophied, and to have lost all their colour. The ascending Colon was distended with gaseous and fæcal matters.

"This case affords us an opportunity to compare its phenomena with those of some similar ones that have been related by Dr. Buchanan of Glasgow, in the 24th volume of the London Medical Gazette, but which differ from ours in the circumstance, that no marks of inflammation or of fibrinous exsudation were observed in any recorded by that gentleman. Such dislocations of the colon are always the consequences of the elongation of this gut; they have been described by several Italian as well as English physicians. Besides the angular or elbow-shaped flexure, Dr. Buchanan has represented, in the sketches which accompany his memoir, a twisting round of the gut upon its axis. These cases should be characterized more particularly by the great tympanitic distension of the abdomen, which is thereby sometimes as much enlarged as in cases of Ascites: the bowels too are usually much confined, while no obstruction can be discovered in the rectum. In consequence of the diaphragm being pushed up into the cavity of the thorax by the enormously distended bowels, the breathing is always much embarrassed."

In the treatment of such cases, Schoenlein very wisely remarks that the well-timed use of antiphlogistic remedies, and more especially of local or even general blood-letting, will often be more serviceable than that of any other remedies. The experience of our *late*—how sad the associations which this little word suggests!—most valued friend and counsellor, Dr. James Johnson, was quite in accordance with this precept. In the number of this Journal for January, 1845, p. 72, he has remarked:—

"In the course of a long and practical life, we have met with many cases of the above kind (invincible constipation)—some fatal, some fortunate. For many years past, we have made up our minds to this point, that whenever constipation exceeds two or three days, inflammation and its various consequences adhesions, ulceration, perforation, &c., are to be dreaded, and are the grand objects of prevention."

The *accumulation of fæculent matters* in some parts of the intestinal canal is apt to be mistaken for scirrhous and other tumours of the viscera. I once saw a man, says our author, whose case had been declared by an experienced physician to be one of scirrhous swelling in the abdomen,—in consequence of a hard immovable lump that was situated at the side of the umbilicus—but who fortunately was speedily relieved of all his inconvenience by the use of warm-water enemata and castor-oil. He subsequently died of another disease; and, on dissection, it was found that the ascending Colon was contracted at one point, and that the gut, nearer the Cæcum, was much distended, and quite filled with hardened fæcal matters. In this case, the swelling was not much bigger than a man's fist; but, in another, it was as large as a child's head, and the fæces were as hard as cannon-balls.—It has been frequently observed that the fæces are apt to accumulate in the cæcum; and it is well for the medical practitioner to be aware of the fact that, in such cases, there may be no constipation; but that even a diarrhœa may be present. A passage is then formed either through the substance of the hardened fæces, or between them and the walls of the gut; and along this passage the thinner matters may flow on, while the thicker and more consistent are retained. A case therefore, of seeming diarrhœa may actually be one of inveterate lodgment. I recently observed something of this sort in the case of a young female, who was recovering from Peri-enteritis of the small intestines, and inflammation of the mucous membrane of the colon. The stools had been frequent, thin, and mucous for several days; but then a large quantity of solid scybalous fæces were evacuated; no sooner did this take place than the diarrhœa entirely subsided. This circumstance is not unfrequently alluded to by the older writers, in their descriptions of Dysentery. The bowels above the seat of the accumulation, are usually much distended with flatus. The circumstances now mentioned must satisfy every reader of the necessity of a physician carefully examining for himself the condition of the alvine evacuations, and of not trusting to the mere report of patients, in cases of obstinate diarrhœa. It will be prudent, too, sometimes, to ascertain the state of the rectum by a manual examination.

Cancerous Disease of the Stomach.

In a case of this formidable malady, recorded in these Reports, the diagnosis was very materially assisted by the microscopical examination

of the matters that were rejected by vomiting. Cellules, having all the characters of those which are usually considered to be characteristic of cancerous formation, were found mixed with the food. Along with these cellules, were numerous fatty globules, a few blood-corpuscles, and a good many epithelial scales. The treatment pursued was of the simplest description. Schoenlein very properly condemns the use of active medicines, such as Iodine, Bromine, Mercury, and so forth, in diseases that are universally acknowledged to be beyond the reach of art. Physicians, he remarks, seem often to forget that Medicine has its limits, and that all attempts to transgress these are usually punished with a decided aggravation of the existing distress.

The abdomen of the patient was fomented with a decoction of Belladonna; and an Emulsion, containing Castor-oil and Cherry-laurel water, was ordered for internal use. An occasional warm bath, and a mild Enema, as circumstances might require, were also prescribed. Subsequently, small doses of Morphia were administered, with the view of procuring sleep. Under the use of these gentle remedies, the sufferings of the patient were very much relieved.

The following general remarks on this awful malady may be aptly introduced here :—

"If the seat of the disease be at a considerable distance from the pylorus, the symptoms are usually much milder than under the contrary circumstances; the vomiting also will be less severe. But even when the pylorus itself is the part chiefly affected, we occasionally find that, in the advanced stages of the disease, when the diameter of this orifice has become enlarged by the progress of the ulceration, the vomiting and constipation either cease altogether or are very materially abated, and the patient is relieved from some of the most distressing sufferings to which he had been previously subject. * * * I have seen, says our author, cases of morbid degeneration of the stomach where, although the ulcerative process had been fairly established for a length of time, all the symptoms, indicative of gastric disease, subsided so entirely that the patient has eaten his food with a perfect appetite and without suffering any subsequent inconvenience. This subsidence of the morbid phenomena has been observed to occur more especially in cases, where pulmonary phthisis had supervened (as not unfrequently happens) in the course of the gastric malady. When this complication exists, it will be found that, just in proportion as the Lungs become more seriously affected, the gastric distress diminishes in severity. The difficulty of the diagnosis may then be increased the more, by the epigastric tumour becoming less distinctly perceptible than it had been before; for the diseased pylorus is apt to be drawn further back towards the spine, and become firmly adherent to the concave surface of the liver, by which it is in a great measure covered and concealed. The microscopic examination of the egesta from the stomach may, under such circumstances, be the only decidedly satisfactory symptom of the existing disease that we possess: hence the very great importance of this mode of investigation. The medical man must, therefore, be on his guard not to let himself be deceived by these fair but false appearances. Occasionally, the biliary secretion is very greatly diminished in quantity; and, as no proper digestion can take place without the aid of the bile, it will sometimes happen that the food is carried rapidly through the bowels, and voided (having undergone but little change) within an hour or so after it has been swallowed. This circumstance will account for the frequent craving for food that may be experienced. This remark applies to various diseases of the Liver, in which the secretion of the Bile is more or less deficient, provided the bowels are at the

same time in an irritable condition. As a matter of course, if this latter condition be not present, the absence of the bile is usually attended with decided constipation."

After relating the particulars of a case which is headed—*Ascites—hypertrophy of the Spleen—tubercles in the Lungs—pus in the Urine—scrofulous phthisis of the Kidney—paracentesis of the Abdomen—urea present in the dropsical fluid—death*, and in which, on dissection, the left kidney had become converted into a mass of soft caseous matter, our author makes the following observations on "Scrofulous Degeneration of the kidneys."

"The symptoms in the early stage of the disease have often a great resemblance or analogy, in the mode of their development, to those which usually indicate the existence of tubercles in the lungs. The constitution exhibits the marks of a scrofulous temperament, and the patient—not unfrequently a boy or girl of from seven to ten years of age—is always more or less ailing, especially after exposure to cold, or any irregularity of diet. Complaint is made of an uneasy feeling in the loins; and, when a more particular enquiry is made, it is discovered that the uneasiness is felt not in the course of the spine, but rather on one side of it. There are frequent calls to pass the urine, especially when the weather is cold and chilly. This frequent desire is often greatest during the night (just as we observe to be the case with the cough in tubercles of the lungs,) and the child may therefore be apt to wet his bed during sleep. The urine at first is observed to be pale and clear, or partially opaque and troubled from an admixture of mucus; this comes from the bladder; and it is well known that, in the early stage of pulmonary phthisis, the sputa are at first from the trachea. As the disease advances, a more decided pain is experienced in the renal region, and then the urine may exhibit marks of an admixture of blood with it: here again we have an analogy to the hæmoptysis so frequent in the second stage of pulmonary tubercles. If the patient be arrived at the age of puberty, there will perhaps be erections, and crampy pains in the scrotum at the same time. Hitherto the renal affection may be amenable to medical treatment. With respect to the treatment, local blood-letting, the ioduret of Potassium, or of Mercury (rubbed in upon the loins,) the use of salt baths, and of a mild unirritating diet—these are the principal means to be employed. When the disease is further advanced, we can only relieve symptoms."

The 39th Case is an interesting one of *Diabetes Mellitus* associated—the connection is by no means unfrequent—with *pulmonary tubercles*. The influence of opium, in diminishing the urinary secretion, was well marked and most beneficial: a grain was given twice a day. It produced no drowsiness, nor any constipation of the bowels; and indeed, as Schoenlein remarks, it seldom exhibits either of these effects in cases of diabetes. From this circumstance, we see with what little confidence we can sometimes predict the effects of various remedies, in certain morbid states of the system. With respect to the presence of sugar in the urine, "I am of opinion," says our author, "that, like that of albumen in this secretion, this morbid admixture may be owing to various circumstances. I have found albumen in the urine in the progress of very different diseases; for example, in acute Rheumatism, in Ague, in some cases of Typhus fever, and in Scarlatina. So I believe it is with the case of saccharine matter in this fluid; and, if so, then surely we must give up hunting after any specific remedy for the malady, and rather seek to discover its cause, or at least the morbid condition of the system with which it is associated, and apply our

therapeutic resources accordingly. If it occurs in connection with scrofulous disease, we should try the effects of the hydro-sulphuret of Ammonia, various preparations of Iodine, a nutritious regimen, and so forth. But diabetes may exist quite independently of this diathesis, and may then require a very different course of treatment. Nothing is more injurious to the credit of the healing art than the too common practice of prescribing for the name, and not for the symptoms, of a disease."

Schoenlein again alludes to the necessity of examining the urine at different periods of the day, if we wish to arrive at accurate results as to its true condition. "In cases of spleen-disease, he remarks, "I have frequently observed that there was always a most copious deposit of the lithates, having a peculiar purplish colour, after any meal; while at other times of the day there was little or none to be discovered. In such circumstances, the patient will continue to lose flesh, although his appetite may remain good all the while. A similar fluctuation in the state of the urine will be found in Diabetes, Albuminuria, Suppuration of the Kidneys, &c. Again, in cases of Scarlatina, towards the decline of the disease, the urine will sometimes be found quite normal in the morning, while it is more or less decidedly albuminous in the evening.

State of the Urinary Organs in Scarlatina.

There is a peculiar phenomenon, that occurs in the convalescent stage of this Exanthem, which is interesting and worthy of notice in many points of view. That there is an exfoliation of the mucous membrane of the mouth and fauces, is known to every medical man; but few are aware that a similar process not unfrequently takes place along the whole course of the urinary organs. That such is the case may be discovered by examining the urine with the microscope. If this be done, we shall often find an innumerable number of epithelial scales, which to the unassisted eye look, in the mass, like a mucous sediment or opalescent muddiness. Schoenlein is of opinion that this exfoliation of the mucous membrane of the uropoietic organs is the real cause that predisposes the patient to that form of dropsy which is so apt to occur after scarlatina, and in which the urine is well known to frequently contain a number of blood-globules, as well as a quantity of albumen. Such a condition of the urinary secretion may very reasonably be regarded, as indicating a state of high irritation of the mucous surface along which it flows. It is, therefore, a very natural and obvious deduction that a patient should never be pronounced quite convalescent by his physician, until not only the cutaneous desquamation has entirely ceased, but the urinary secretion also has resumed its healthy condition in every respect. If this rule were more uniformly followed in practice, many of the most unpleasant *sequelæ* of Scarlatina might unquestionably be avoided. The patient should be strictly guarded from cold, and the state of the urine be sedulously watched for several weeks after the decline of the eruption.

The 41st Case is one of *Erysipelas* of the face, which occurred in a middle-aged labouring man, who had been much addicted to excessive drinking. The cutaneous eruption was very imperfectly developed, and there was much cerebral irritation present. It was not deemed wise to administer any opiate with the view of assuaging the head-symptoms, al-

though they partook largely of the characters of *Delirium tremens*. The wiser course appeared to be to induce a more decided derivation of the blood to the surface, in the hope of exciting the torpid exanthem to greater activity, and at the same time to stimulate the bowels and kidneys by appropriate remedies.

To attain these objects, 20 leeches were, first of all, applied behind the ears. The patient was afterwards placed in a large tub, and a quantity of cold water poured over him. The following mixture was ordered for internal use:—

℞. Infusi herb. Digitalis (℈ss.) ℥iv.
Nitri ʒij.
Tart. stibiat. gr. j.
Mucilag. gummi Mim. ℥j.
Syrupi simpl. ℥j. M.

A table-spoonful to be given every hour.

The patient ultimately recovered. The following remarks, on *the use of the cold affusion in Erysipelas*, are deserving of especial notice.

"In the case of this patient,—whose condition upon admission was most unpromising, in consequence not only of the livid aspect of the Erysipelatous eruption, but also of the tendency to the supervention of Delirium tremens—we had recourse to a remedy whose use is not without danger, but which the circumstances of the malady seemed to require. The cold affusion is not to be employed in all cases, nor in any without great consideration; for very serious consequences may result from its injudicious adoption. According to my experience, it is when the exanthem exhibits a livid or bluish colour; when the affected skin is little swollen, but is dry and is the seat of a burning prickling heat; when the temperature of the body is unequal, the extremities being perhaps cold, while the head is hot; and when the accompanying fever is of a nervous typhoid type, that the cold affusion is sometimes of great service; indeed, the only remedy which holds out any prospect of decided advantage. When this is the case, we observe, after its employment, that the skin becomes more turgescent, that the colour of the eruption is more decidedly red than it was before, that the delirium abates, and the tongue is moister—changes, which indicate that the remedy need not be repeated. If, however, the former state of things returns, it will be necessary again to have recourse to the affusion. I have seen another form of Erysipelas, in which the cold affusion has been employed with signal advantage: this form prevailed epidemically in the hospital at Zurich in the year 1836. The exanthem did not come out upon the surface fully or regularly; there were only patches scattered here and there; and these appeared for a short while, and then vanished. At the same time, the sensorium was much disturbed. A few of the patients lay in a state of stupor; but in most there was a strange confusion of mind, so that they left their beds, and went about the wards, as if they were going to their ordinary work. Some of them squatted themselves down upon the floor, fancying that they were on the night-stool, or in the water-closet. In most instances, the pulse was but little excited, except towards evening; in some it was below the natural standard.* After the use of the cold affusion, the ex-

* An unusually slow pulse is a common phenomenon in many cerebral diseases. Indeed, the presence of this symptom in some cases, where the diagnosis is difficult and ambiguous, may serve to assist the medical man in the judgment which he ought to form of the nature of his patient's malady.

anthem came out much more freely, the face became redder and more swollen, and altogether there was a more distinct vascular action than had existed before. In most of the patients, the effect of the douche was of short duration; it required to be repeated in the course of a few hours, and even a third time. There is still another form of the disease in which the remedy has been used with marked benefit. As we saw in our present patient that the erysipelatous affection stood still, and that the skin, under the exfoliating integument, exhibited a new redness, so we not unfrequently have occasion to observe a similar phenomenon in elderly persons, who are affected with a constant erysipelas of the face; the red patches upon the point of the nose or over the zygomatic arch, for example, being surrounded with a red ring, and presenting a shining surface. If in this state the head becomes affected, and if the patient is delirious, has a rapid weak pulse, a dry coated tongue, and the stomach is perhaps irritable to vomiting, I believe that there is no remedy that promises so much benefit as the judicious employment of the cold affusion. The old physicians in such cases recommended an emetic in the first instance, and afterwards the use of camphor and such-like stimulants; but I greatly prefer the above treatment."

There is a tendency to Dropsical complaints occurring after some forms of Erysipelas, as after Scarlatina. Not unfrequently, too, we find that erysipelas of the face leaves behind it a swelling of the sub-maxillary or cervical glands, or an inflammation of the internal ear—two very common results of scarlet fever. Mania, as well as other cerebral affections, are also occasional consequences of erysipelas of this part.

Influence of Menstruation upon the Exanthemata.

The appearance of the Catamenia, in the course of any of the acute exanthemata, is always to be regarded as an unpleasant symptom. Cases, indeed, occur, where the act of menstruation seems to have a truly critical salutary influence upon the existing fever; the violent pyrexial and the grave nervous symptoms subsiding immediately upon its development. But the very opposite state of things is much more common; and most experienced physicians must have met with cases where the occurrence of this secretion, during the eruptive stage of Measles for example, has been speedily followed by alarming oppression and anxiety, and perhaps by death. If the case does not prove fatal, the eruption will generally be observed to become more or less livid, and to have petechial spots mixed with it; these spots may be distinguished from the proper exanthem, by not disappearing under the pressure of the finger. A not unfrequent symptom in such circumstances—and one of the worst augury—is a very fetid odour of the breath, the tongue being at the same time parched, and covered with a dry brown crust. Again, when the Catamenia are entirely suppressed, the prognosis must be extremely unfavorable. It is therefore obvious that the state of this function must influence very materially our opinion, as to the danger of exanthematous fevers in menstruating females. Many of the older writers have alluded to the very unfavourable change that is apt to occur in the eruption of small-pox, by the occurrence of menstruation. The pustules are apt to become livid from the admixture of a sanguinolent fluid with their contents, and large patches of ecchymosis to make their appearance on different parts of the surface. The danger is the greater, if the catamenia occur upon the seventh or eleventh

day of the exanthem.* An inexpressible oppression or anxiety is then apt to come over the patient; she feels inwardly assured (a genuine *clairvoyance*) of her approaching dissolution; her pulse becomes exceedingly weak and rapid; her feet are cold; and in a few hours, perhaps, death will close the scene, although everything had, shortly before, seemed propitious and favourable.

Dissection in such cases usually discovers an unusual fluidity of the blood, and—a common consequence of this morbid state—a dark-red colouring of the inner surface of the blood-vessels; such as we frequently observe in cases of death from lightning. This appearance has been erroneously attributed to inflammation; whereas it is the mere result of imbibition or Endosmosis of the vascular parietes.

The Intermittent Character of certain Diseases of the Nervous System.

The tendency to intermittence of the symptoms, in various lesions of the Cerebro-spinal System, is a circumstance that ought to be well known to medical practitioners; as they might readily fall into a serious error in their diagnosis, if they were not aware of it. In the acute Hydrocephalus of children, the symptoms in the early stage of the disease very usually exhibit more or less of intermittence. I have repeatedly noticed this circumstance in the genuine disease—not to mention that form of fever which has been called *intermittens maligna cerebralis*, and which has been so often mistaken for it. In the after-part of the day, the symptoms of cerebral irritation usually come on, and continue till about midnight; then they gradually subside, and the child appears to be almost quite well, so that its parents may probably suppose that it was nothing but a casual illness. Again, however, in the afternoon, the child becomes feverish and uneasy; and the same aggravation and subsidence of the symptoms occur as on the preceding day. This state of things will, if unchecked, continue until the pyrexia and head-distress become permanent. When such is the case, mischief has already fairly commenced, and will perhaps utterly defy the best directed efforts of the most experienced physician. In inflammatory affections of the Spinal Marrow also, this intermittence of symptoms is not unfrequently observed in the early stages of the morbid action.

Issues on the Scalp in Chronic Cerebral Diseases.

The establishment of a caustic drain on the scalp over the suspected seat of the lesion, in cases of chronic cerebral disease, has proved in my hands a remedy of very decided utility. I remember the case of a woman who suffered the most agonising pain, notwithstanding the use of the most powerful narcotics, in consequence of a carious destruction of the petrous portion of the left temporal bone: the patient was much emaciated, and was affected with hectic fever. A potential cautery was applied over the squamous plate of the bone. As soon as the cauterized skin began to discharge, the relief was most gratifying; and the progress of the fatal event

* In a case of Scarlatina, related in these reports, Schoenlein advises medical men never to give a confident favourable prognosis in this disease, until the eleventh day is past.

was very materially retarded. Women, who have, at some former period of life, suffered from a chronic irritation of the cerebral meninges, are apt to be affected, as life advances, with a most severe pain on the crown of the head, either along the course of the Sagittal Suture or a little to one side (usually the right) of it. When such a case proves fatal, the cerebral meninges are generally found to be thickened and agglutinated together, and the glandulæ Pacchioni to be enlarged; this increase of size being sometimes so great as to have caused a considerable absorption of the bone over them. In such cases, all opiates and anti-spasmodics are utterly useless, and perhaps decidedly injurious: the only safe and judicious remedies are repeated local bleedings, and the establishment of an issue over the seat of the lesion.

For exciting the irritability of paralysed muscles, the most important of all remedies is unquestionably *Electro-Magnetism*. I have seen many remarkable cures effected by its use. Not a few cases of paralysis of the generative organs have been speedily and effectually benefited by it. *Strychnine*, also, will be found to have very remarkable powers in curing certain forms of paralytic weakness. Its employment requires much discrimination and judgment; for, if administered too early, before the cerebral lesion has been very materially modified, mischief, and not benefit, will be the result. The same remark is applicable to the use of electricity.

Before drawing our notice of this truly valuable volume to a close, there are two or three incidental topics which attracted our notice during its perusal, and which therefore may not be undeserving of the reader's attention.

The Doctrine of Post-scabial Diseases.

"Of late years the recognition of post-scabial diseases, an ancient dogma in medicine, has been not only abandoned, but ridiculed and despised. In 1807, Autenrieth wrote an admirable memoir on the subject; it was by him, and not by Hahnemann, as is generally supposed, that public attention has been drawn to the subject in the course of the present century. The discovery of the scabial Insect has brought the whole matter once more into dispute. That this animalcule is often present in cases of Scabies, I can testify myself, as I have seen it on more than one occasion; but that its presence upsets the old doctrine of post-scabial disease, I must distinctly deny. I will not insist upon the direct experiments and observations in olden times; nor upon the fact that, when, after the disappearance of the itch, another disease sprung up, the latter either stood still, or entirely ceased, as soon as the former re-appeared. I will take another line of argument, and enquire of the opponents of the doctrine, How is the itch developed? At first, we observe minute papules; these are speedily changed into vesicles and pustules. Now it has not been shown that, on the earliest appearance of the papules, any trace of an insect is to be found: this would be a *filius ante patrem*. Here, therefore, there is an obvious contradiction.—Moreover, it is admitted by Raspail, and all his followers, that the insect is far from being present in every vesicle of the Itch; and yet, if the animalcule be the cause of the disease, it ought surely to be so.—There is another fact that deserves notice; and it is this: the insect is found only in the disease of recent standing, and not in old and chronic cases.—The objection, that the disease may be communicated by the inoculation of the insect, cannot have much weight; for the insect could not be well conveyed from the vesicle, without carrying along with it some of the contagious matter. To render the experiment convincing, the

microscopic insect would require to be well washed and cleansed with a brush! for we all know what a minute quantity of contagious matter will suffice for the purposes of contagion. The question is, therefore, by no means definitively settled by the discovery of the Itch-animacule, as many writers have supposed. I will frankly confess that I have no doubt myself as to the existence of post-scabial diseases. It has been frequently observed (especially in old persons) that a peculiar ulceration of the skin, more particularly around the joints of the lower extremities, is apt to occur after the disappearance of a scabious eruption; and that, if this ulceration (the *ulcus psoricum* of certain authors) be suddenly dried up, internal diseases of a decidedly peculiar description are apt to arise. As I have already said, there is no doubt in my own mind that Scabies is apt to occasion various consecutive maladies, and among these I may mention diseases of the Heart."

Memoranda on Rheumatism.

It is one of the most difficult problems in practical medicine, to determine the exact degree in which we should encourage the elimination of the diseased product (the *materies morbi*) of Rheumatism from the different emunctories of the system. We know that, if we act too powerfully upon the skin, this tissue becomes, so to speak, saturated with the acrimonious matter (*acre rheumaticum;*) and some cutaneous affection—as Erythema or Miliaria—is apt to be induced. In the same manner, if we direct the action exclusively upon the kidneys, certain morbid changes in the functions of these important excretory organs may occur in consequence. Thus, Nephritis has been known to take place in some instances; while, in others, the urine has been found to become albuminous, or to contain such an excess of lithic acid, as to give rise to renal calculus. A morbid material or product is unquestionably present in this disease, and must be eliminated from the system before we can expect to obtain a cure. There are three channels or emunctories by which this process of elimination may be effected—the skin, the kidneys, and the bowels.

* * * * * * * *

"It is a curious and somewhat puzzling circumstance in the history of Rheumatic diseases that, in many cases, the constitutional symptoms, without any discoverable cause, exhibit a marked nervous character, while the local ones are unattended with any material or physicial alterations of the parts affected—in other words, there is no formation of any morbid production. In such cases, we have always to fear the supervention of some internal mischief. Sometimes the muscles, that are the seat of the chief pain, become affected with Paralytic weakness; at other times, I have seen the cerebro-spinal axis struck with a genuine *nervous* Apoplexy. This is a very dangerous form of disease; and should the attack prove fatal, no decided morbid appearances are almost ever discoverable in the encephalon. It has been the fashion of late years to deny the existence of this form of apoplectic seizure: it is, however, not unfrequently alluded to in the writings of the older physicians. That there is such a disease I feel quite convinced; although I readily admit that it is by no means easy to explain many of its phenomena. I saw a well-marked case of it recently, in the person of a young woman, who had been seized with a paralytic weakness of the lower extremities. She speedily recovered the use of them by the employment of alkaline baths, and the exhibition of *ammonium pyro-oleosum*. She returned to her work as kitchen-servant too soon. A few days subsequently, she was brought back to the hospital in a state of apoplexy; the attack proved fatal. No morbid appearance was discoverable upon dissection in any part of the brain. Such

cases are by no means unfrequent. It is worthy of notice that they stand in an inverted relation, in point of frequency, to the *materiality* of the rheumatic process. The greater the amount of the formation and excretion of the acid matters from the system, the less tendency will there be to this formidable malady. These torpid forms of nervous disease belong to the worst kinds of articular Rheumatism."

The Therapeutic Action of certain Medicines.

"We often observe that a medicine reaches a point of saturation, so to speak, in its effects upon certain organs, so that no increase of effect is obtained by an increase of the dose. It would be instructive to ascertain whether this operation of a remedy is at all correspondent with the induction of other positive and obvious phenomena; for example, whether the effects of Digitalis as a diuretic are at all influenced by the amount or degree of narcotism, which it may happen to induce. If such were the case, we should have a guide or indication for the discontinuance of the medicine. The older physicians were well acquainted with the circumstance alluded to. According to them, so long as a remedy corresponded with, or was suitable to, the malady for which it was prescribed, its injurious or poisonous effects are not apparent. Thus, enormous doses of Nitre may be given in inflammatory disorders, without causing any disturbance of the digestive organs; its operation and action are entirely expended upon the morbid process; when this is over, then indeed will be experienced its unpleasant effects, especially if the medicine be continued in the same doses as before. A similar remark has been made respecting the effects of Mercury upon the system. Now there is a good deal of truth in these statements. A physician must have often occasion to observe that the diuresis, caused by the operation of a diuretic, will suddenly become very much diminished, although the medicine be continued in the same doses. If, however, the use of the medicine be suspended for even a single day, it will be found that, when resumed, it is as potent as ever it was; although there has been no increase in the quantity administered. In such cases, we shall often find that the success of the treatment depends not upon the degree of irritation produced on any one organ, but upon the adaptation of the remedies to the peculiarities of each individual case. It is far from being necessary to have frequent recourse, in the treatment of disease, to the more potent or very active remedies; the judicious use of the more gentle will often effect the desired object, with much less suffering to the patient, and less injury to his constitution."

As an illustration of these remarks, let us hear what Schoenlein says of Broussaiism:—

"At the time when the antiphlogistic method of treatment was in full swing, and the whole of practical medicine was comprised, so to speak, within a nut-shell, mere frequency of the pulse was almost always set down as a symptom of fever; and wherever there was fever, then there must be inflammation; and where there was inflammation, blood must be drawn more or less freely. When a patient died, the question invariably was, has he been bled?—and how often?—and, if it was answered ten times, the immediate reply was—what a pity that he was not bled the eleventh time! I have myself seen chlorotic girls bled, merely because there was palpitation of the heart, and the pulse was unusually rapid. As a matter of course, many of the unfortunate victims sank under the treatment. I well remember the case of a medical dignitary, who was treated strictly according to the most approved method of the antiphlogistic plan for some fancied phlogistic disease, and in whose body the appearances found on dissection clearly indicated not inflammation, but positive anæmia."

What Sydenham has said of the injudicious treatment of Gout, may be

applied with still greater force and truth to that of Fever, under the blood-letting mania which so long prevailed among the continental physicians—*fidenter assero, multa et longa observatione suffultus, maximam partem eorum, qui Podagra periisse putantur, non tam ipso morbo quam indebita medicatione fuisse peremptos.*

We cannot pay a higher compliment to Schoenlein than to say, that the present volume is deeply imbued with the spirit of the writings of our great countryman.

MEDICO-CHIRURGICAL TRANSACTIONS, published by the Royal Medical and Chirurgical Society of London. Volume the Twenty-eighth (the Tenth of the Second Series. Longman and Co. 1845.

IN presenting to the notice of our readers another volume of the Transactions of the Royal Medical and Chirurgical Society, we have much pleasure in congratulating the Fellows on the successful progress of the Society, which is fortunate in having elected as President, a gentleman of the highest character as an accomplished physician and practitioner. During a season in which the elements of disorder were rife in every department of the profession—in which angry feelings were engendered by the collision of opposing interests and different views in relation to medical politics, all parties met as friends in the room of the medico-chirurgical Society, to further the objects of medical science, and to communicate and interchange their views of practice. The more important points of the labors of the Session are exhibited in the volume before us, which contains a series of papers of great value and interest. We are happy to learn that the improved state of the finances of the Society has led the Council to act with increased liberality towards the contributors to the Transactions. The authors are not now obliged to bear any portion of the expense of the plates illustrating their papers—not even of the coloring of them, and they receive a limited number of private copies free of all cost. The present volume, though containing a less number of papers than its predecessor, forms a bulky book of 623 pages, owing to the great length of some of the communications; indeed, one of the papers occupies so much space that it might well have been published in an independent form.

1. CASE IN WHICH THE VENA CAVA INFERIOR WAS OBSTRUCTED FROM THE COMMENCEMENT OF THE COMMON ILIAC VEINS, AND ITS CAVITY ENTIRELY OBLITERATED BETWEEN THE ENTRANCE OF THE EMULGENT AND HEPATIC VEINS. By *Thomas B. Peacock*, M.D., Physician to the Royal General Dispensary, Aldersgate Street.

The author remarks that, though a considerable number of instances are recorded, in which the main venous trunks of the upper or lower portions of the body have been found more or less completely obstructed, it is conceived that the following case, which furnishes an unusual example

of an entire obliteration of the inferior cava, will be interesting to the Society.

Agnes M'Ewen, aged 47, of intemperate habits, was admitted into the Royal Infirmary of Edinburgh, on the 16th of August, 1842; she had been married at the age of 25; had had six children, and always recovered well after her confinements. In the October preceding, her health began to decline, and the catamenia appeared more frequently, and the discharge was more copious than previously. "In the course of the spring she received a severe blow on the abdomen, and the following day had hæmorrhage from the bowels. After this her health rapidly gave way, and the catamenia ceased; the abdomen became swollen, and one month before her admission her legs also were observed to be œdematous, the urine being at the same time scanty and high-colored. Two days before her death she was seized with profuse vomiting of blood, and when received into the Infirmary was greatly prostrated, her countenance was pale, puffy, and sallow, the limbs very œdematous, and the abdomen large and tense. Shortly after being removed to the ward, the hæmatemesis recurred, and bloody fluid was discharged from the bowels. She sank eight hours after her admission."

Autopsy 37 hours after death. The following were the more important morbid appearances. Body was anasarcous and abdominal cavity contained ten pints of a pale straw-colored fluid. Old adhesions on both sides of the chest; on the left side, the false membrane was fibro-cartilaginous and full half an inch in thickness, and the lung was of small size, and the corresponding portion of the chest contracted. The stomach contained a large quantity of thin bloody fluid, but its mucous membrane was healthy. The liver was extremely small, weighing only 24 ozs., but free from disease. The left kidney was reduced to a very small size, weighing only 1½ oz. The pelvis was expanded, and the striated portion almost entirely destroyed. The right kidney was large, weighing 5½ ozs.—it was pale and granular. The uterus was somewhat larger than usual and attached by firm adhesions to the rectum, sigmoid flexure of the colon, and the sides of the pelvic cavity.

"On removing this organ from the body, the veins in its substance, in the broad ligaments, and around the ovaries, were found distended by firm fibrinous clots, and on following the various branches, in the course of the circulation, the common iliac veins displayed similar coagula, and they thence extended continuously throughout the cava, till about 1½ in. below its passage through the diaphragm, that vessel became reduced to an impervious ligamentous cord. The fibrinous clots on the right side, though firmly obstructing the common iliac vein, ceased immediately above its division; but on the left side they extended both into the hypogastric and external iliac veins, entirely closing their cavities. The left common iliac vein was firmly adherent to its corresponding artery.

"In the veins of the uterus and ovaries, the coagula had a peculiar fusiform shape, and were firmly adherent to the coats of the vessels, generally by one extremity; they were very solid, so large as to distend the vessels, and generally about half an inch in length, and were composed of lymph in layers of a pale color, alternating with others of a pinkish hue. In the iliac vessels and cava they consisted of continuous masses, distinctly laminated, not unlike the fibrinous layers of an aneurismal sac. Their color in the iliacs and lower part of the cava was pale red, and they gradually became more decolorized as they advanced towards the heart; they were closely united to the tunics of the veins,

and entirely filled their cavities. The spermatic veins were of large size, and their coats thicker and firmer than usual; the orifice of the left vein into the trunk of the emulgent, and of the right into the cava, were closed by firm fibrinous masses, and the course of the right spermatic vein was occupied by small fusiform clots adherent to its coats, and similar to those of the uterine veins.

"The calibre of the iliac veins, and especially of the cava, was much reduced, and their coats were indurated and thickened; this became more conspicuous towards the upper part of the vessel;—the cavity occupied by the clots gradually diminishing, and the coats increasing in thickness, till, as before stated, about an inch and a half below the passage of the vessel through the diaphragm, it became entirely obliterated, and was reduced to a mere cord, about the size of the little finger, of a glistening white colour, and firm fibrous texture.

"The communication of the left emulgent vein with the cava was open, and this vessel was throughout free from coagula; a vein of considerable size, also unobstructed, entered it from above. The right emulgent vein was closed by a large and closely adherent coagulum, projecting into its orifice." P. 5.

The heart, with the liver and other abdominal viscera, having been removed from the body before the obstruction of the cava was detected, the author was unable to institute so satisfactory an examination as would have been desirable, into the course by which the venous blood of the lower extremities had been returned to the heart. "On examination, however, the vena azygos was found of unusually large size, being immediately above the entrance of the vena azygos minor, fully one inch in circumference; the branches entering the right vein, and the vena azygos minor with its branches, and especially some from the spinal canal and intercostal spaces, were greatly enlarged. The portal trunk and branches were free from disease; the hepatic veins entered the only portion of the vena cava inferior which remained pervious. The veins of the integuments of the abdomen and those following the course of the internal epigastric artery, did not appear larger than usual.

The author remarks that the above case possesses several points of interest. "It evinces the facility with which the venous circulation can be maintained notwithstanding the entire obstruction of one of its main trunks. In this respect, it is not less remarkable than the case related by Dr. Baillie, in which 'the inferior cava was changed into a ligamentous substance, from the entrance of the emulgent veins to the right auricle of the heart,' yet we are assured that this condition was in no degree accessory to the death of the patient. Cases of this description, in which the obliteration of the vessels is complete and of long duration, are decidedly rare, though not a few instances are recorded of partial or recent obstructions in the cavities of the inferior and also of the superior cava."

The history of the case is unfortunately very defective, and leaves us in doubt whether the dropsical symptoms should be ascribed to the atrophied condition of the liver and diseased state of the kidneys rather than to the disease of the veins. The formation of the obstruction in the veins, it is justly remarked, was most probably due to an attack of uterine disease, but of which there is no history. There could be little doubt that the course of the venous circulation had been entirely re-established before death, the largest portion of the blood, probably, having found its way into the superior cava, through the vena azygos.

"That vessel was found greatly dilated, being fully double its ordinary size,

and the intercostal branches, and those proceeding from the spinal canal, were also much enlarged. The freedom of anastomosis between both divisions of the vena azygos, and the spinal and lumbar veins, would afford a ready channel for the returning column of blood, which may have reached those vessels through the medium of the ilio-lumbar and circumflexa ilii veins. The communication between the left emulgent vein and the commencing branch of the vena azygos minor would allow the return of the blood from that vessel.

"Though the branches of the vena porta freely anastomose with the systemic veins, more especially through the medium of the vena mesenterica inferior, and may thus, in cases when the cava is obstructed below the entrance of the hepatic veins, assist in maintaining the circulation, it is not probable that in the present instance this channel was materially concerned in conveying the blood from the lower extremities to the heart. The liver, it will be seen, though free from other morbid change, was very much reduced in size, being less than half its usual weight; the portal circulation must therefore have been much impeded, and hence, most probably, the dilatation of the venous branches on the surface of the liver. Mr. Kiernan has shown that the capsular veins of that organ are branches of the portal system, and anastomose with the phrenic veins, and thus become the medium of a collateral circulation, in some cases of atrophy of the liver. M. Reynaud, in a case of obstruction of the vena cava and portal trunk, found the veins on the surface of the liver dilated, and traced them to a common trunk which pierced the diaphragm, and opened into the cava above the seat of the obstruction." P. 9.

The author sees no reason to suppose that the integumental veins of the abdomen and thorax, and the epigastric, thoracic and mammary veins materially contributed to form collateral channels for the conveyance of the blood.

The disease is viewed by Dr. Peacock as evidently inflammatory in its origin, though the history is too defective to enable him to assign the period at which the inflammation had occurred. From the same cause it is impossible to ascertain the relation which the disease of the veins bore to the affection of the kidneys, which was the immediate cause of death.

This case, though imperfect, both in respect to its history, and the post mortem examination (for which, however, we attribute no blame to the author,) is of so rare a nature, that it is perhaps deserving of record in the volume before us. Dr. Peacock has increased the value of the paper, by adding an Appendix, containing references to the cases of obstruction of the superior and inferior cava previously published. He classes them under the four following heads. 1. Obstructions resulting from inflammation of the coats of the veins. 2. Obstructions resulting from pressure on the trunks of the veins. 3. Accumulation of morbid deposits in the cavity of the veins. 4. Obstruction of the veins by coagula resulting from stasis of the contained blood. This Appendix includes a large number of cases, of many of which a brief outline is given. It evinces considerable research, and will be useful to others desirous of investigating the subject.

II. On the Classification, Structure, and Development of the Echinococcus Hominis, showing reasons for regarding it as a species of Cysticercus. By *Erasmus Wilson*, F.R.S., &c.

The author's observations have been limited to two cases of hydatids,

instances of acephalo-cyst of the liver, in both of which he discovered the animalcule in question. He was led by this circumstance to infer that, the echinococcus must be more common in its occurrence than had previously been imagined, and he found his opinion corroborated by that of Mr. Curling, who, in a note to Mr. Wilson, states that this, instead of being, as he once supposed, a rare form of hydatid, is the most common one infesting man. Dr. Livois, in a work lately published in Paris, entitled "Recherches sur les Echinococques," considers them to exist in every case of acephalo-cyst. From these statements, the author remarks, it is obvious that the echinococcus is a common parasite of the human frame, and that it is probably present in the majority of instances in which acephalo-cysts occur. The term echinococcus was applied by Rudolphi to the acephalo-cyst and its contained animalcules in conjunction. Muller employs the term in its more significant meaning, as referable to the animalcules alone. The former use of the term assumes a speciality in the acephalo-cyst, while the latter recognises the animalcules as independent beings, or as parasites of the common acephalo-cyst. Mr. Wilson's observations lead him to the latter conclusion, and they further go to prove that the echinococcus has no claim to consideration as a distinct genus, but is in reality a species of the genus cysticercus, to which species, for reasons hereafter to be detailed, he thinks the term "*cysticercus pedunculatus*" peculiarly applicable.

"The acephalo-cyst in which the echinococcus is found, is identical with that in which the animalcules are absent. Nothing is more true than the fact stated by Müller, and admitted by Dr. Livois, that in some acephalo-cysts the animalcules are present, while in others, from the same subject, they are absent, and there may be cases in which they are wanting in all the cysts, although such cases are probably rare. The acephalo-cyst is composed, as is well known, of two tunics—an outer tunic, which is semi-transparent, laminated, finely granular in minute texture and highly elastic; and an internal layer, consisting of a thin and very delicate membrane studded with innumerable transparent cells, varying in extremes of measurement from $\frac{1}{10000}$ to $\frac{1}{300}$ of an inch in diameter; but having a medium size of $\frac{1}{2000}$ of an inch.

"This membrane is the seat of development of the echinococcus, and to this, in a fresh acephalo-cyst, they are found connected by means of a very delicate proper membrane, either singly or more commonly in clusters, varying in numbers of individuals from two to one hundred. Some idea of the numbers of echinococci inhabiting a single acephalo-cyst of moderate size, may be inferred from the fact, that in one cyst of the size of a small hazel-nut I counted forty clusters; in several of the clusters there were eighty individuals, and in the entire cyst not less than one thousand. Now, when it is recollected that the majority of acephalo-cysts in an ordinary hydatid tumor would be larger than the one here described, and that of these there may be from one hundred to one thousand present, the entire number of living beings nourished at the expense of the fluids of the diseased person, in such a case must be enormous." P. 24.

We shall not follow the author in the minute description which he has given of the structure and development of the echinococcus, as few of our readers would understand it without reference to the figures in the plate by which the paper is illustrated. The animalcules have been accurately described by previous observers, and the only novelty that we perceive in Mr. Wilson's paper is an account of the *peduncle*, by which the animal is

fixed, either to its own proper membrane, or to the internal membrane of the acephalo-cyst.

"The peduncle is cylindrical, short and granular. When the animal is separated from its attachment, the peduncle offers a variety of appearances, depending on the manner in which it may be torn, and when it is broken close off, an opening is left, which communicates with the internal cavity of the body of the animal. Through this opening I have frequently seen nucleated cells expelled by compression." P. 30.

In proof of the identity of the echinococcus with the cysticercus, the author mentions that all the characters of the latter, viz., a head provided with hooklets, a neck supporting four suctorial processes, and susceptible of retraction within the body, and a membranous cyst like body, are present in the echinococcus; the situation, the number, the general form of the hooklets, and their arrangement, are the same in both, and the suctorial processes are the same. The peduncle, however, is an important distinction, and merits, Mr. Wilson thinks, the notice bestowed on it in the paper.

This communication is creditable to Mr. Wilson, as a minute and accurate observer, and we may add that the figures by which it is accompanied are well executed. But as the paper has no practical bearing, and illustrates no point in pathology, we consider it more suitable for the pages of a zoological journal than for the Transactions of a Medical Society.

III. A CASE OF ANEURISM OF THE POPLITEAL ARTERY CURED BY COMPRESSION OF THE FEMORAL ARTERY. By *Edward Greatrex*, Esq., Surgeon, and *W. T. C. Robinson*, Esq., Assistant-Surgeon of the Coldstream Guards.

On the 2nd May, 1844, Private John Hedley, æt. 27, walked to the hospital, and complained of pain and swelling behind the right knee, which had obliged him to fall out of the ranks on returning from a quick drill in Hyde Park. "On examination, a large irregularly shaped aneurism was found filling up the popliteal space, strongly pulsating, and admitting of being partially emptied by pressure. It was tender and painful, the leg and foot somewhat swollen, and veins turgid. The swelling prevented his straightening the knee-joint, the circumference of which, taken over the middle of the patella, was 17¾ inches, but of the sound knee only 15½ inches. He had perceived the tumor only a few days before his admission into the hospital." He had every appearance of strong health. When he had been in the hospital a week he was attacked by acute laryngitis, which required active treatment. On his convalescence, in the beginning of June, it was determined to treat the aneurism by pressure applied to the femoral artery.

"An instrument was made for the purpose by Mr. Weiss. It consisted of an Italian tourniquet, a broad short splint to fit the outer and back part of the thigh being substituted for one of the usual pads, as less likely to cause pain and sloughing.

"It was first applied on the 18th of June, on the artery at about six inches below the fold of the groin, and the pulsation of the aneurism stopped: but on

visiting him shortly afterwards it was found to beat again with unabated force, and this was the case over and over again, although the shape of the pad was changed, and various other little alterations tried.

"He had now the ill luck to be attacked by modified small-pox, which, although slight, occasioned necessarily some relaxation in the treatment of the aneurism.

"The same constant escape of the vessel from beneath the pad occurred until the 8th of July, notwithstanding pressure was made as strongly as he could bear it, or as was advisable for fear of sloughing. The knee then measured 18¼ inches, and the tumour had become softer on the outer side, the pulsation and bellows-sound being very strong and loud. On the 8th of July the plan was adopted of screwing the pad down firmly, and leaving him the key, so that he might, when the pain became intolerable, and 'burning like a hot iron,' to use his own words, relax the pressure by turning the screw for an instant or two, taking care always to apply his thumb or fingers with all his force on the artery just above, in order that during these short but frequent intervals the passage of the blood should still be retarded, if not stopped.

"On the 9th of July this method was found to have been successful, the tumour was now perfectly solid, and no pulsation or bellows-sound has since been detected in it.

"The instrument was kept applied as described, for nine days after the pulsation had ceased, to avoid any risk of the stream of blood again making its way into the aneurism: on the afternoon of the 18th of July it was entirely removed, Mr. Stanley agreeing in the opinion that all danger had passed. The skin under the pad was slightly inflamed, and three or four small blisters had risen there; beyond this, there was no damage done by the instrument. The superficial femoral artery was clearly felt to pulsate down to its entrance into the tendinous canal, though perhaps not quite so forcibly as in the opposite thigh. Two arteries as large as crow-quills employed in the collateral circulation, were felt passing downwards on the surface of the now hard and solid tumour.

"On the 9th of August, the tumour having diminished, he was allowed to walk about on crutches. On the 24th he walked well with a stick, and could put his heel to the ground. From this time the progress of the case may be told in a few words. He has been kept in the Hospital, but allowed to be up and about all day. Absorption of the contents of the aneurism has proceeded very slowly; with a view of hastening it, friction with stimulating liniments, and gentle pressure by the application of a flannel bandage, have been used.

"On the 8th of November the measurements were, of the right knee 16¾ inches, of the other 15¼ inches: although he can perfectly straighten the joint, he finds it easier to walk with it slightly bent. The tumour in the ham is hard, flattened, and yet nearly as large as a hen's egg; on its surface the vessels above-mentioned are still perceptible. His general health has been very good, and he has grown fat and stout. On the 14th November he was dismissed the Hospital, and returned to his battalion in the Tower, to undertake light duty." P. 43.

He subsequently resumed full duty, and on the 6th of June, 1845, was stout and well.

This case is a successful example of the treatment of aneurism by a method which has lately been revived, and carried out with more efficient instruments, and in a better manner, than formerly. In the old plans of attempting the obliteration of the aneurismal sac by pressure on the main artery of the limb, the force was so applied as to interfere with the collateral circulation, as well as with that of the vessel leading to the aneurism, and the consequence was, that the plan was not only extremely

painful, but attended with greater risk of producing mortification, than the placing of a ligature on the vessel, and the numerous failures, and even fatal results which ensued, led to its abandonment. In the mode in which pressure has recently been applied, the collateral channels have not been interfered with. Within the last few years, some surgeons of eminence in Dublin are reported to have practised compression with considerable success, and it has likewise been tried in several of the hospitals of this metropolis. The subject, however, of this method of treating aneurism of the great vessels of the extremities, including the mechanical apparatus for its application, the amount and duration of the pressure, the cases best suited for this plan of cure, and the grounds for its preference to ligature on the artery, is of too much importance to be dismissed in our brief notice of Mr. Greatrex's case. We can only remark that, in cases of popliteal aneurism of moderate size, in which the surrounding parts have not been much disturbed, the patient being young and healthy—in fact, in such a case as the one here detailed, we strongly recommend the trial of this plan of treatment.

IV. ON EXTRAVASATION OF BLOOD INTO THE CAVITY OF THE ARACHNOID, AND ON THE FORMATION OF THE FALSE MEMBRANE WHICH SOMETIMES ENVELOPES THESE EXTRAVASATIONS.. By *Prescott Hewett*, Esq.

The extravasations of blood treated of in this paper have of late years been carefully examined by several French pathologists, as one of the forms of their "Apoplexie des Méninges;" but these affections have not, as far as the author is aware, received from English pathologists that degree of attention which they will be found to deserve. Blood extravasated into the cavity of the arachnoid may there be found in different states, which, for the sake of perspicuity, the author arranges in four divisions, according to their degree of simplicity.

"1. The extravasated blood may be either liquid or coagulated; if in the latter state, it may be in clots, or spread out in the shape of a thin membranous layer, covering a greater or lesser extent of the surface of the brain.

"2. Sometimes the extravasation presents itself under the shape of a false membrane, possessing more or less of the original colour of the blood; in some cases it is even reduced to the fibrine only, and of a slightly yellowish tinge.

"3. The blood may be fixed to the free surface of the arachnoid, and there maintained by a membrane, which to the naked eye presents all the characters of the serous membrane itself.

"4. The blood is frequently found enclosed in a complete cyst, of various degrees of thickness, which may be removed unbroken from the cavity of the serous membrane.

"The four divisions above referred to may be, and often are, combined with each other, but, in whatever state the extravasated blood has been found, it has, in the majority of cases, corresponded to the upper surface of the brain, and has been rarely met with in the cerebellic fossæ." P. 46.

The author observes that the main feature of the first division is, that it forms a most important link in the appearances about to be examined. He gives, as an example, the case of a patient who died of phthisis, having been repeatedly attacked with delirium shortly before death. "Covering

the free surface of the parietal arachnoid, which lines the right middle fossa of the skull, was a large coagulum of blood, measuring, in some places, two lines in thickness. This coagulum, of a fawn colour towards its cerebral surface, was flattened and spread out, but it had not contracted any adhesions with either of the layers of the arachnoid. The brain and its membranes did not present any other trace of disease; the source of the hæmorrhage was not discovered."

The thin membrane-like layer of coagulated blood just mentioned, evidently gives rise to the appearances noticed in the second division. Once thus spread out, the coagulum, after some little time, loses its colouring matter; the fibrine, of different hues, is left, and then gives rise to a false membrane of various degrees of thickness.

After detailing a case, which affords a good illustration of these appearances, Mr. Hewett remarks:—

"The false membranes, arising from extravasation of blood, may be found loose in the cavity of the arachnoid, attached to one of the free surfaces of that membrane; or they may become a bond of union between its two layers, and this, too, without the intervention of any inflammatory action.

"In the great majority of cases, however, the false membrane is connected with the parietal arachnoid only, to which it is pretty firmly attached; its free surface corresponding to the visceral arachnoid, being perfectly smooth and polished, and presenting all the characters of a serous tissue; under these circumstances it is generally supplied plenteously with blood-vessels. When thick, this membrane is often-times divisible into distinct layers; of which, the external ones are of a light colour, whilst the internal ones still possess more or less of the colour of the blood. Clots of blood, of various sizes and colours, are not unfrequently found, either in the structure of the membrane, or upon one of its surfaces. These clots may have proceeded either from the vessels of the arachnoid, or from those of the adventitious tissue. Cysts containing serum and blood, or serum alone, are also met with in these membranes.

"The newly-formed tissue is at times soft and pulpy; at other times having existed for a long period, and undergone various changes, it presents a fibrous, a leathery, and even a cartilaginous appearance. In these states, if firmly attached to the parietal arachnoid, the membrane is very likely to be mistaken for diseases of a very different character; thus, the appearances now under consideration have been referred to chronic inflammation, either of the dura mater, or of the arachnoid, with thickening of these membranes: they have also been described as the result of inflammation of the meninges, producing an exudation of coagulable lymph upon the free surface of the arachnoid." P. 52.

Mr. Hewett refers to 13 cases minutely described by Bayle, under the head of "chronic meningitis with false membranes in the cavity of the arachnoid," in some of which, if not in all, he thinks the membrane owed its origin to an extravasation of blood, and not to an exudation of lymph the result of inflammation, as that author supposes.

After stating his reasons for this, which we are inclined to believe, with him, is the correct view of these cases, he adds that "Mr. Baillarger, who has had frequent opportunities of examining these membranes, under circumstances precisely similar to those of Dr. Bayle, has also come to the conclusion that, in the majority of these cases, the membranes are the result of an extravasation of blood, of more or less standing."

In the third division are classed the cases in which the extravasated blood is fixed to the free surface of the parietal arachnoid by a fine delicate

transparent membrane, apparently possessing all the characters of the serous membrane itself, of which it, at first sight, appears to be a part. Two cases, being good examples of these appearances, are detailed by the author, who observes, that this class of cases derives an increased interest from the fact, that these extravasations of blood were for many years described as having taken place between the dura mater and the parietal arachnoid, which membranes were thus supposed to have been widely separated from each other.

"The pathological investigations carried on within the last few years by Messrs. Longet, Baillarger, Calmeil, Ernest Boudet, and others, have all shown that the fine delicate membrane which covers these extravasations of blood, and which presents to the naked eye all the characters of a serous tissue, is a newly-formed membrane, so beautifully adapted to the original serous membrane, that it is only with the utmost care that the exact limits of each can be defined. The cases of this nature which I have examined, have afforded me an opportunity of verifying the accuracy of this opinion; and in speaking of the formation of this membrane. I shall bring forward several examples, which will, I trust, prove that it is much more frequently and much more rapidly formed than is usually supposed.

"Blood extravasated, and thus connected to the parietal arachnoid, may present itself under two different aspects: it may either be collected in one cavity; or it may be disseminated in patches, of various sizes and thickness, over the surface of the serous membrane, the intervening parts of which present a natural aspect." P. 59.

To this class of cases Mr. Hewett is "inclined to refer the patches, of various sizes, of a reddish brown or dark yellow colour, described by Dr. Foville as separating the arachnoid from the dura mater; with which patches this author, in another paragraph, states that extravasations of blood are not unfrequently connected. The patches are, I presume, nothing but these disseminated extravasations of blood, which have lost more or less of their colouring matter. Even Dr. Foville, although he classes these appearances under his 'Meningite parietale,' states that their inflammatory nature is not sufficiently well established for him to enter into a detailed account of the various circumstances connected with them. In this class of cases the collections of blood have never, that I am aware of, been found fixed to the free surface of the visceral arachnoid; even where the blood has proceeded from a laceration of the brain, I have found it fixed to the parietal layer of the serous membrane."

The true nature and situation of those collections of blood, described by many pathologists as being situated between the dura mater and its arachnoid lining, are most easily detected in the cases classed in the fourth division, when the blood is contained in a completely closed bag, which may be detached from the parietal arachnoid, and, with its contents, removed unbroken from its situation. The author remarks, that the existence of these encysted collections has been known to pathologists for many years, but their identity with the supposed extravasations of blood between the dura mater and the arachnoid was, as far as he knows, first pointed out by Mr. Baillarger in 1834. The appearances which these collections of blood present, are well exemplified in the following case. E. W., æt. 51, admitted into St. George's Hospital with paralysis of the limbs and nearly in a state of insensibility, had typhoid symptoms, and died. For the last

two years he had been complaining of his head. On examination of the body, Mr. Hewett "found the frontal bone studded, in several places, with deposits of a scrofulous nature, which had, apparently, been originally situated in the diploe, from whence they had, in some parts, caused the absorption of both tables, and in other parts that of the external table only. The external surface of the dura mater presented no morbid appearances worth noticing. Connected with the parietal arachnoid were two remarkable collections of blood, one on either side of the falx. At first sight these extravasations appeared to have taken place between the dura mater and its serous lining, dissecting off the latter to a great extent; but, after a careful dissection, it was ascertained that these appearances depended upon a false membrane, which formed over each extravasation a complete cyst, connected by one of its surfaces to the parietal arachnoid; whilst the other surface, being perfectly smooth and polished, presented all the characters of the original serous tissue, to which it was so beautifully adapted, that it was with difficulty ascertained where the respective membranes began. The connections of the left cyst with the serous membrane were somewhat looser than those of the right, so that that cyst was more readily peeled off from the arachnoid, which was found somewhat roughened, but not discoloured. Each of the false membranes extended far beyond the cysts, and lined the greater part of the parietal arachnoid, corresponding to the upper surfaces of the hemispheres; but the right cyst was much larger, and much more prominent than the left. The walls of the cysts were much thicker than any other part of the false membranes, which were bevelled off, and gradually lost upon the serous tissue; on the left side, the cyst was about a line in thickness. The right membrane was of a yellowish brown colour; the left was of a light yellow. The cavity of the right cyst contained bloody fluid and coagulated blood, amounting in all to about ℥ iv.; the coagula presented various colours—some were dark, some of a rusty, and others of a yellow-ochre colour; the cavity of the left cyst was not more than a quarter of the size of that of the right, and its coagula were much more solid. Both cysts were perfectly smooth on their internal surfaces, except at a few points, where some fibrinous coagula were adhering to them. The margins of the membrane on the right side presented, at their junction to the serous tissue, a network of vessels, most beautifully injected, which proceeded in countless numbers towards the cyst. The visceral arachnoid was throughout perfectly sound, and unconnected with either cyst; but on the right side, both the brain and its investing membranes were deeply tinged with yellow. The hemisphere of the brain, corresponding to the right cyst, presented a deep cup-like surface. The substance of the brain, with the exception of the discolouration above mentioned, was healthy in its aspect, but its ventricles were distended with serum. The superior longitudinal sinus, and the upper part of both lateral sinuses, were perfectly healthy. The source of the hæmorrhage remained undiscovered. There were no marks of external violence about the skull."

The author proceeds to remark:—

"Encysted collections of blood, such as those described in the preceding case, have been found in various parts of the cavity of the arachnoid; but in the great majority of cases, these collections correspond to the upper surface of the

hemispheres of the brain. The connections of these bags with the free surfaces of the serous membrane in which they are lodged, are sometimes so slender that they appear all but loose; at other times, these bags are pretty firmly connected both with the parietal and with the visceral arachnoid, but most frequently they are connected with the parietal arachnoid only, to which they are sometimes most beautifully adapted; and, in this case, so much do they, on their free surface, partake of the character of an original serous tissue, that they appear, at first sight, to be a part of diseased and thickened arachnoid, stripped off the fibrous membrane.

"If the disease be of some standing, the cavity of the cyst may be perfectly smooth and polished, or it may be intersected by fibro-cellular bands, running in various directions; sometimes fibrinous clots are found adhering to this internal surface.

"After a certain period, the membranes forming these cysts become thoroughly supplied with blood-vessels, which may be seen in countless numbers, permeating their whole structure; in several cases it has been noticed, that a minute network of vessels, most beautifully injected, is found at the margins of the new tissue, thus marking the point of union between the original and the false membranes. Thus organized, these cysts possess all the physiological characters of an original serous membrane; they secrete, they absorb; they have been found filled with clots of fibrine and blood-tinged serum; sometimes they contain serum alone, of various colours, and oftentimes, in the cavity of the same cyst, are found coagula of blood of various hues, some recently effused, and others of long standing. In one case, given by Abercrombie, all the contents of the cyst had disappeared, and the cyst itself was found flattened and perfectly collapsed." P. 66.

The latter part of the paper, from which we have quoted rather largely, is certainly the most original; as the author justly states, in the history of these encysted extravasations in the cavity of the arachnoid, one of the most interesting studies is that of the formation of the false membrane by which the extravasated blood is subsequently, either partially or wholly, surrounded. The most generally received opinion is, that an exudation of lymph, consequent upon the arachnoid being irritated by the presence of blood, takes place, and surrounds the extravasation; this explanation, it is remarked, may serve for some few cases, but it will certainly not do so for the majority. The author is convinced that the opinion, broached by some pathologists, of the membranes being, *in some cases*, formed from the blood itself, will be applicable to *a very large majority of these extravasations*. He brings forward several examples to prove that this membrane is wholly formed by the coagulated fibrine of the extravasated blood, and not by a secretion of lymph, as is usually supposed. These examples consist of cases of *blood extravasated into various serous cavities, and covered over by a false membrane, without the least trace of inflammation in the neighbouring tissues*. Six cases are detailed to establish this point, and having, as he supposes, thus proved that a membrane presenting the characters of a serous tissue, is formed from blood extravasated, the author adduces some cases of a newly-formed membrane being produced from the blood in the vessels themselves, and that, too, without any apparent signs of inflammation. The production of this membrane may take place either on the coats of the vessels or on the surfaces of clots contained in the vessels. In a case of an aneurismal pouch situated above the aortic valves, it is stated, "its internal surface was lined throughout by a fine transparent

membrane, perfectly smooth and polished on its free surface, except at a few points where some small fibrinous coagula were adhering to it. This membrane and the lining membrane of the artery were, throughout the whole circumference of the aneurismal opening, perfectly continuous, and so beautifully adapted to each other, that, to the naked eye, they appeared to be identically of the same character. In the preceding case it appears to me that the internal and middle coats of the artery had been destroyed, and that the pouch was formed by the cellular coat lined with a membrane which owed its origin to the fibrine of the blood constantly circulating through this abnormal cavity, and which had subsequently taken on the characters belonging to the serous coat of this vessel."

On examining the body of a man who died of diffuse cellular inflammation of the inferior extremity terminating in gangrene, in the superficial and common femoral veins, Mr. Hewitt "found extensive clots, not completely filling up the veins, but slightly adherent at different points, to their internal coats. These clots still retained in some places the colouring matter of the blood, whilst at others the colourless fibrine alone remained; in both the veins the clots were enveloped in a perfectly distinct, transparent, smooth, and polished membrane, presenting the appearance of a serous tissue. In the structure of these membranes were several distinct arborescent vessels, minutely injected; some of these vessels were of sufficient size to allow of the blood being made, by gentle pressure, to circulate through them; but no communication could be traced between these vessels, and the coats of the veins. The membranes were easily peeled off from the surfaces of the clots with which they were in contact. The internal coats of the veins presented their natural colour, and polished surfaces, except at the points where the slight adhesions above-mentioned existed."

Mr. Bowman, who had an opportunity of examining with the microscope newly-formed membranes similar to those described in the preceding cases, mentioned to the author the curious fact, that he had never yet found any epithelial cells on the smooth polished surfaces of these membranes, although they, to the naked eye, appear to be exactly of the same nature as the membrane which lines the arteries.

The clots in the heart and large vessels of persons who have died of lingering disease, sometimes present perfect types of the manner in which the extravasations of blood into serous cavities become encysted. The upper surface of the clots, in the cavities of the heart, as this organ lies in its natural position, is not unfrequently covered over by delicate, transparent membrane, of a whitish colour, and perfectly smooth, and polished on its free surface, which may be easily peeled off from the blood, with which it is in contact. Even blood extravasated into the tissues, becomes enveloped by a cyst, the formation of which may be, in some cases, traced to the fibrine of the extravasated blood. The well-known apoplectic cyst owes, the author thinks, its origin, in many cases, to the fibrine of the blood already extravasated into the substance of the brain, and not, as is commonly supposed, to an exudation of lymph consequent upon irritation and inflammation of the neighbouring parts.

"Extravasations of blood into the cavity of the arachnoid have been found perfectly circumscribed by a false membrane, presenting all the characters of a

serous tissue, six days after the first appearance of the symptoms. I have seen an extravasation of blood into the cavity of the pleura thus circumscribed five days after the accident. If the membrane is, as I suppose it to be in the majority of cases, formed by coagulated fibrine, there is no reason why these extravasations should not be found circumscribed, even at an earlier period; for I have already stated that I have repeatedly found the coagula of the large vessels twenty-four hours after death, completely encysted in a membranous layer of coagulated fibrine.

"By whatever process formed, these new membranes, in the cavities of serous tissues or in vessels, are so beautifully adapted to the original serous tissue, that it becomes a matter of the greatest nicety to trace the respective limits of each." P. 79.

Connected with these extravasations, Mr. Hewett alludes to a remarkable circumstance, viz., an intermission in the symptoms either of coma, or even of paralysis. This intermission may be dependent upon an interruption in the pouring out of the blood, during which time the brain gets accustomed to the pressure and recovers its functions, until a fresh extravasation takes place. This intermission also occurs in those cases where the extravasated blood has been completely surrounded by a perfectly organized cyst, which, by pouring out a fresh quantity of blood or serum into its cavity, may produce symptoms of compression, which will vary according to the more or less rapid absorption of the fluid.

This paper possesses considerable pathological interest. It has evidently been prepared with pains and care, and the latter part, relating to the organization of effused blood, contains observations of an original character which cannot fail to increase Mr. Hewett's reputation as a scientific pathologist. An extensive experience in similar researches enables us to bear testimony to the accuracy of his views.

V. ON THE COLOSTRUM OF THE COW. By *John Davy*, M.D., F.R.S.

The Colostrum—the new milk of the cow after calving—differs from ordinary cow's milk, in being of a richer yellow colour, less liquid, of greater specific gravity, and in possessing the property of coagulating when heated. Resembling in the last-mentioned property the serum of the blood, or the substance of the egg, it has been supposed by some pathologists to be more animalized than common milk, and to contain even serum, and that its being coagulable by heat, is owing to the presence of serum. This inference not having appeared to the author to be proved in a satisfactory manner, he was induced to subject it to some trials, the results of which, in his opinion, tend to show that serum does not enter into the composition of the colostrum, and that its coagulability by heat depends on a peculiar modification of its caseous portion.

We must refer those of our readers who may be interested in the experiments which led Dr. Davy to this conclusion, to the paper itself. He remarks:—

"Physiologically considered, the most marked circumstances belonging to the colostrum, are the concentration of nutritive matter in it; the greater facility of its coagulation by rennet, compared with older milk, and its greater power of resisting change when exposed to the action of atmospheric air. These are

qualities which may be eminently serviceable, viewing it as the first food of the young animal. Its easy coagulation may suit it to the stomach, in which probably the gastric juice at first, is in small quantity and feeble. Its power of resisting change, and remaining semi-fluid, may adapt a part of it to the intestines, to promote the removal of the meconium. Whilst its concentration as nutritive matter may fit it to perform for the calf the same part that the substance of the egg serves which enters the intestine during the latter stage of fœtal development in the instance of birds, reptiles and fishes." P. 91.

Dr. Davy adds:—

"If the special use of the colostrum of the cow is such as I have inferred, it may be expected that the first milk of other animals will be found to be similar in its properties,—at least, of all those the young of which, like the calf, are born fully-formed and vigorous, with good use of their limbs almost immediately after birth. And so far as I have been able to learn, this is so. The new milk of the ewe, of the mare, and of the sow, I am informed by intelligent farmers, is as rich and thick, and, in the instance of the two first, coagulates when heated." P. 92.

Whether the first milk of those animals, the young of which are born helpless and feeble, as of the carnivora, is also like the preceding, cannot, the author states, be at present determined for want of facts. He is disposed, however, to conjecture that it is similar. In the carnivora, it may be requisite for the first milk to be rich, from the manner in which these animals feed, having to leave their young to procure food, and to be absent, it may be, an uncertain time. And, in accordance with this, is the fact, that the human milk, the first drawn, is not unusually rich, and does not coagulate when heated; at least, these are the results of the few trials of it that Dr. Davy has made. The "peculiar dilute state of the human colostrum, if proved to be general, seems equally suitable to the condition of the offspring and mother, the one helpless and feeble, not requiring concentrated nourishment, the other commonly, from a certain degree of exhaustion during labour, ill fitted to yield such a supply;—and, moreover, being designed for domestic life and support, and not under the necessity of separating herself from her offspring to go in quest of precarious food; offering in this point of view, another instance to the vast number of examples of harmonious adaptation; and it may be also one circumstance more, by which man as an animal is distinguished from every other."

VI. Case of Obstruction of the Large Intestines, in which the Ascending Colon was opened with success: the Patient dying three months afterwards of another Disease. By *Samuel Evans*, Esq., of Derby.

Lewis Street, æt. 23, a farmer of robust frame, has for several years been liable to attacks of diarrhœa. In September, 1843, he ate a large quantity of sloes, and was afterwards seized with violent symptoms of colic, which were relieved by bleeding and active aperients. In January the attacks of colic recurred. They became more severe on the 5th of February, and Mr. Evans saw him for the first time on the 7th. "He was suffering from severe pains recurring at intervals of five or ten

minutes; the abdomen was greatly distended, but free from tenderness on pressure. The right iliac region appeared to stand out in relief from the distended abdomen; the pains were principally felt in this situation, but extended to the right loin, and to all parts of the abdomen; he had not had any evacuation from the bowels since the 5th, notwithstanding the administration of the most active aperients prior to my visit." Notwithstanding the remedies adopted, no relief was obtained. On the 12th the author "found him vomiting large quantities of olive-coloured stercoraceous matter, and suffering from most agonizing pains in the abdomen; he attributed this attack of pain and vomiting to a dose of castor oil, which had been taken a short time previously. One hundred minims of liq. opii sed. were given, which relieved him in half an hour." On the 13th, several small portions of fæcal matter, and a large volume of flatus were brought away by a soap-and-water injection, after which the distension of the abdomen was diminished. From this time to the beginning of April he continued to get worse. It was quite obvious that there existed a partial obstruction in the bowels, since, the distension of the abdomen, and the *swelling in the right iliac region*, had considerably increased. "The patient had become much emaciated, was extremely weak, and his general health greatly impaired; the vomiting recurred almost daily, and the stomach could retain only the smallest quantities of food; the lower extremities were much swollen, the tongue and skin dry, the pulse frequent and small."

On the 25th March, Mr. Evans represented to the sufferer that relief might probably be afforded by the formation of an artificial anus in the loin, but in compliance with the wishes of his friends, the operation was postponed.

April 8th. The patient being much emaciated and in a sinking state, and the abdomen distended to the greatest possible degree, consent was given to the operation.

"The patient having been laid on the bed with his face downwards, two pillows were placed under the belly for the purpose of rendering the right loin more prominent. I made an incision of four inches across the loin, commencing it at the outer margin of the sacro-lumbalis muscle, about an inch above the crest of the ilium, and extending it forwards in a direction parallel to the crest. Having divided the latissimus dorsi, and the outer margin of the quadratus lumborum muscles, I proceeded to expose the bowel by opening the fascia; but in doing so, I also opened the intestine, which was intimately united with the fascia, by dense cellular tissue, without any intervening fat; indeed, no fat whatever was brought into view, as I had been led to expect there would be—a fact that may be accounted for by supposing the extreme distension of the head and ascending portion of the colon, to have pressed upwards the kidney with its circumjacent fat, above the line of incision. Possibly, however, this fat may have been absorbed, as the man was extremely emaciated. The instant the bowel was punctured, a profuse quantity of semi-fluid, clay-coloured fæces was projected with great force through the opening, and continued to escape for a considerable time, so as to amount altogether to more than two gallons. I then enlarged the orifice in the intestine to the extent of one inch in a transverse direction, or parallel to the external incision. The last steps of the operation consisted in connecting the edges of the incision in the intestines, with those of the outer or anterior half of the external wound, by means of five sutures, the inner third of the external wound being closed by a pin, and twisted suture, and covered by a few strips

of adhesive plaster. A small piece of oiled lint was then placed between the edges of the wound in the intestine, and cloths wetted with warm water were laid over the wound. The abdomen, now reduced to its natural size, was supported by a many-tailed bandage, and the patient was placed on his right side in bed, so as to allow of a free escape of the contents of the bowel through the wound." P. 101.

The patient's recovery remained doubtful for a few days after the operation. He subsequently began to improve, and on May 8th he was gaining flesh; the wound in the intestine was perfectly united to the skin, but the orifice was so reduced in size, as barely to admit a rectum-tube of common dimensions. When this was passed about five inches up the ascending colon, it seemed to meet with an obstacle, and, as it caused pain it was withdrawn. "As he feels no natural desire to defecate, he finds it necessary to remove the plug from the artificial anus four or five times a-day, whilst he is in the horizontal posture, and the fæces being always semi-fluid, easily escape into a vessel placed under the orifice. Injections of warm water have been administered by the rectum every two or three days, but they have invariably returned mixed with small portions of opaque mucus."

June 8th.—The patient had become quite fat, and there appeared every prospect of his soon regaining his accustomed strength. On the 25th, however, he was attacked with diarrhœa, with symptoms of dyspepsia. On the 28th, a diabetic state of the urine was observed, and on the 2nd of July, after a ride of six miles in an uneasy cart, symptoms of peritoneal inflammation supervened, and he died on the 5th. The body was examined 23 hours after death.

"The artificial anus was a small constricted circular aperture, about five-eighths of an inch in diameter; its margin was firm and unyielding; the integuments near the orifice were slightly drawn inwards, and their connection with the coats of the intestine were so intimate, that the line of union of the tissues could not be defined.

"The abdomen contained 6 ozs. of serum, of a dirty yellow colour.

"The stomach and small intestines were greatly distended with flatus; the peritoneal surface of the lower two-thirds of the ilium was highly vascular, and of a florid red colour.

"The mucous membrane of the stomach and small intestines appeared healthy; the latter contained a small quantity of pale yellow chymous matter.

"The cæcum was enormously distended, and was nearly as large as a stomach of ordinary size; the ascending colon was also much enlarged.

"About a quarter of an inch from the commencement of the transverse colon, that is, just beyond the angle formed by the junction of the ascending and transverse portions of the colon, the gut was contracted to about three-quarters of an inch in diameter, and about the same in length; the contracted portion presented a cartilaginous hardness.

"The serous covering of the cæcum, ascending colon, and the first half of the transverse colon, was highly vascular; there were numerous small patches on its surface, of a deep red colour, which were partially covered with recently-effused lymph.

"The anterior three-fifths of the circumference of the first half of the ascending colon were bounded by peritoneum, and the posterior two-fifths by the fascia covering the lumbar muscles; and it was in the latter part of the bowel, about half an inch beyond the cæcum that the artificial anus was formed.

"About two ounces of dark brown fæcal matter were found in the cæcum and

ascending colon; the mucous membrane was of a deep claret colour, and thickly covered with bloody mucus.

"The contracted portion of the colon was almost as hard as cartilage; it formed a ring about three lines thick, and nine lines broad, and appeared to consist of compact white fibres, arranged irregularly around the intestine; between the mucus and muscular coats the stricture would just admit a crow-quill; its inner surface was in a state of ulceration, and presented an irregular granulated appearance without any traces of mucous membrane. The mucous membrane of the first third of the transverse colon was in a state of uniform injection; the whole extent of the transverse colon was lined with a muco-purulent secretion, of a greenish colour, which was most abundant near the stricture.

"The descending and sigmoid portions of the colon were quite empty and contracted, and presented no morbid appearance." P. 109.

The author remarks:—

"This is the eleventh case on record, in which Callisen's operation (modified by Amussat) has been performed in the adult, in consequence of obstruction in the intestinal canal.

"From the previous history of the case, it would appear that the disease had been of slow progress, and of considerable duration. The gradual distension of the abdomen, and the absence of any satisfactory evacuation from the bowels during a period of seventy days, served to give strength to the opinion, that there existed a progressively increasing obstruction in the bowels, which, from the small amount of fæcal matter evacuated during that period, approached very nearly to a case of complete obstruction." P. 110.

The patient was in so alarming a condition at the time of the operation, that it was impossible to imagine a case more unfavorable for the operation, but as the patient recovered in health, so as to be enabled in two months afterwards to walk several miles, as far as the operation is concerned, Mr. Evans regards the case as successful. He observes, "if the patient had possessed a sound constitution, there is reason to believe that he might have enjoyed a tolerable share of health, but subject to the inconvenience attending an artificial anus, as the obstruction of the bowels was so complete as to preclude all hope that the continuity of the canal might ultimately be re-established."

This case will be perused with some interest by operating surgeons. The propriety of performing such an operation in a case where some doubt must exist as to the seat and nature of the disease causing the obstruction, has been questioned. We certainly are not likely to meet with many instances in which the indication in respect to the situation of the stricture is so clear as it appears to have been in the above case. The great distension of the colon rendered the operation comparatively an easy one. We have pleasure in acknowledging the skill and judgment displayed by Mr. Evans in the management of the case.

VII. ON THE MORTALITY IN PRISONS, AND THE DISEASES MOST FREQUENTLY FATAL TO PRISONERS. By *William Baly*, M.D., Physician to the Millbank Prison, and Lecturer on Forensic Medicine at St. Bartholomew's Hospital.

After contrasting the present improved condition of our prisons with that which existed in the time of Howard, Dr. Baly, nevertheless,

mentions it as a fact resting on statistical enquiries, that the mortality is much higher among prisoners than among persons of the same age in society at large, and he considers this fact well worthy the consideration of medical men in reference to the causes upon which it may be found to depend.

"The desire," he proceeds to say, "of arriving at a satisfactory conclusion as to the relative activity of different causes of disease in the Penitentiary, led me to institute a rather extensive inquiry respecting the rate of mortality, the nature of the more prevalent fatal diseases and their causes in other penal establishments.

"The main results of this investigation were, first, that imprisonment, continued for periods of 2, 3 or 4 years, produced everywhere a high rate of mortality; and secondly, that, although in particular instances other causes might contribute to increase the number of deaths, yet, in all prisons, the Millbank Penitentiary included, the increased mortality was chiefly due to the prevalence of *one and the same disease*, namely, tubercular scrofula. The facts upon which these conclusions are based, will be detailed in the paper now before the Society." P. 116.

A new epoch in the history of prison discipline in this country has arisen, he conceives, since the prison at Millbank has ceased, in June, 1843, to exist as a Penitentiary; since the diet of all gaols has been regulated on a new and improved scale, and new prisons have been erected, to which all the resources of modern science have been applied.

Dr. Baly proposes in the present paper to review only the results of imprisonment during the period of fifteen or twenty years just past, and the plan which he intends to follow is, first, to determine the rate of mortality in the Millbank Penitentiary, and in other prisons, as compared with that of the free population in the same country. Secondly, to point out causes, independent of diet and discipline, which influence mortality in prisons; and lastly, to show the relative prevalence of different classes of fatal diseases amongst prisoners, and demonstrate the influence of duration of imprisonment, diet, season of the year, age, sex, and other causes.

I. RATE OF MORTALITY IN PRISONS.

Rate of Mortality in Millbank Penitentiary.

A difficulty occurs at the outset in estimating fairly the mortality during the period of 18 years, viz., from 1825 to 1842, (both included,) over which the observations extend; for, although the number that actually died in the establishment was 205, giving an average annual per centage mortality of 2·14 upon the average number of prisoners 532 for this period, there were 355 invalided or pardoned on medical grounds, a portion of whom would have swelled the mortality had they not been removed. Dr. Baly, after a careful consideration of all the facts bearing on the subject, considers that 123 of these would probably have died before the expiration of their terms of imprisonment, and that that number must therefore be added to the other deaths, making the total amount 328, and the annual per centage mortality 3·42, a rate more than double that of 1·539, *i. e.*, the mortality per cent. of the inhabitants of the metropolis between

15 and 70 years of age for the year 1841. But it is to be remembered that this was a healthy year, and that Asiatic Cholera caused 81 of the deaths among the prisoners, which being subtracted, reduce the Millbank mortality to 3·0976, which is still excessive.

After stating the sources of his information, which is gathered over a very wide field, and giving a table which must have cost great labour in its construction, and which is highly interesting and valuable for the results which it displays, the author adds the following summary of what has just gone before.

"It will be seen that the annual rate of mortality ranges in the different prisons in England from 15·767 per thousand to 38·938 per thousand; in the prisons of the United States, from 19·019 to 39·336 per thousand; and in Switzerland from 26·380 to 38·690 per thousand; while in France the rate of mortality of the Hulks varies from 30·7 to 53·4 per thousand, and that of the Houses of Correction from 30·5 to 86·9 per thousand." P. 127.

A table of the rates of mortality between 15 and 70 years of age for London, Paris and other parts of France, for Geneva, and for New York, shows the much smaller mortality in all these places observed among the population at large.

II. CAUSES INFLUENCING THE RATE OF MORTALITY IN PRISONS.

1. *Pardons on medical grounds*, it is shown, are granted to those confined in the other English prisons, as well as to prisoners at Millbank; and the same practice obtains in the United States also. It is calculated that, on this account, the apparent annual mortality 19·013 per thousand in thirty-six principal gaols and houses of correction in England should be raised to 22·788 as probably nearer the truth. As pardons on account of ill health are not granted to convicts in the Hulks, the mortality is comparatively very high, viz., 38·938 per thousand.

2. *Differences of the Prisoners in respect of race, class, and consequent predisposition to disease.*—Under this head we have M. Villermé's authority quoted for the fact, that the mortality in the different prisons in the Department of the Seine increased in a direct ratio with the wretchedness and poverty of the prisoners, ranging from 1 in 40·88 of those in good circumstances to 1 in 3·97 among the utterly destitute. In the United States, too, it appears that the mortality in prisons is greatly increased where a large proportion of the coloured population is mixed with the whites. The mortality of the white races, we find it stated, is raised by imprisonment from 13 or 15 to 20 per thousand annually; but that of the coloured race, which in the free condition ranges from 23 to 27, has risen in one Penitentiary during the last 14 years as high as 70 per thousand, and even higher in another prison during the last three years. The high rate of mortality in the English Hulks may be in part referred to the former practice of removing the healthy and able-bodied convicts, and leaving such as appeared, from disease or infirmity, unfit for transportation to a penal settlement.

3. *Length of the Terms of Confinement.*—The average term of imprisonment varies greatly in different prisons, and, as a general rule, the rate of mortality is highest in those places where the terms of imprisonment are longest; the Hulks of England, however, the Penitentiary of Lausanne, and the French Maisons Centrales, present exceptions on the side of excess, that is, have a greater mortality than corresponds with the duration of imprisonment. Amongst the American prisons, the lowest rate of mortality is coincident (in the Auburn State Prison) with the longest average term of confinement, while the highest co-exists (in the Eastern Penitentiary) with the shortest average period of imprisonment.

"In consequence of the number of deaths in prisons being liable to increase or diminution from so many different causes, it is impossible to determine the exact influence of the duration of imprisonment, by comparing the rates of mortality in different penal establishments. But we attain this object more satisfactorily when we compare the rates of mortality to which prisoners are subject at different periods of their imprisonment in the same prison."—P. 144.

After explaining the difficulties to be overcome, and the data on which he has proceeded, Dr. Baly thus expresses the result which, in all probability, most nearly approximates to the truth. "The rate of mortality amongst the prisoners in the Millbank Penitentiary, then, appears to have been 13·052 per thousand during the first year of punishment; 35·645 during the second year; 52·267 during the third year; 57·139 during the fourth year; and 44·170 during the fifth year; the rate of mortality rising rapidly from the first to the third year, and slowly in the fourth year; but falling again in the fifth year."—P. 150.

The author closes this division of his subject with the remark, "that in the Millbank Penitentiary, and also in the prisons of France, the mortality has been greater amongst the prisoners who were undergoing their second, third, or fourth year of imprisonment, than amongst those who had been longer in confinement, so that it would seem as if prisoners who were of feeble constitution, or predisposed to disease, generally fell victims to the injurious influences attending imprisonment before the end of the fourth year of their confinement, while those who were able to support their punishment until that period, without serious deterioration of health, were proof against the causes of disease to which they were exposed."—P. 155.

4. *The Locality.*—Dr. Baly points out that the number of deaths occurring in different prisons cannot be taken as any guide as to the relative healthiness of their sites, unless the influence of the other causes already discussed be in the first place ascertained and equalized; except at least in those cases in which the combined effects of those other causes are found equal or nearly so. He conceives that the only sure evidence of the mortality being increased by a noxious influence of the locality, will be the prominent part played by endemic diseases amongst the causes of death; and proceeds to inquire into the nature of the diseases causing death in six of the American prisons. These endemic diseases he considers under three heads, viz.—1. Fevers, exclusive of the exanthemata. 2. Bowel complaints. 3. Hepatic diseases. He shows that, in the Sing Sing State prisons, the mortality of which he has proved to be excessive,

to the extent of 6 per 1000 annually, (after allowance has been made for the operation of the other causes already discussed,) the annual mortality per 1000 in the prison, and amongst the population, above 10 years of age, in New York, are respectively from Fever 3·093 and 1·400; from Bowel complaints, 4·860, and .884; and from Hepatic diseases, ·773 and ·334. The annual mortality per 1000 in this prison, from all these causes together, reaches 8·726, while in Charlestown state prison it reaches only 2·614, though this is the next in amount among the six prisons brought into comparison. The Sing Sing prison, it is remarked, stands on a low flat, at the foot of a hill which completely overlooks it, and close to the bank of a very large tidal river, the Hudson. The conclusion at which the author arrives, that the excess in the number of deaths in this prison is due to the insalubrity of its locality, seems well supported by the facts adduced.

He comes next to discuss the influence of locality in reference to prisons in England; and it results from the table setting forth the mortality in different prisons from the three classes of diseases before mentioned, that the proportion of deaths caused by them in the principal county-prisons, 32 in number, taken collectively, has been only $\frac{1}{5}$ less, while in some of them it has been greater than in the Penitentiary. The average annual mortality by all the diseases which can be ascribed to the influence of malaria, has been 4·511 per 1000 prisoners in the County Gaols and Houses of Correction, and 5·632 per 1000 in the Millbank Penitentiary; and this excess has been almost entirely due to Fever. In the Wakefield House of Correction the mortality by Fever alone, and that by bowel-complaints alone, has been still greater, and by both together $\frac{4}{5}$ths greater than in the Penitentiary. These results are obtained without any allowance for pardons on account of ill health, which, in reference to these acute diseases, is deemed unnecessary. An examination of the reports of the Registrar-General shows that the mortality from these diseases during recent years has been three times as great in the county prisons of England as amongst the general population of London; this excess being due to that arising from the first two classes of diseases; that from hepatic complaints being less among prisoners than among the community at large. Fever in prisons is far less a scourge than formerly, producing now in ten years not so many deaths as it formerly caused in one.

The author here digresses to consider the influence of the dietary upon the mortality in prisons, after having shown the discordant and contradictory opinions which have been entertained on this question. The injurious effect of a diet, consisting in great measure of liquids, is supported by the fact that, while diarrhœa has prevailed in a prison, the neighbouring population have not suffered in a proportionate degree; and diarrhœa in prisons has followed an impoverished diet, and been stopped or mitigated after its improvement. On the other hand, it may be urged that, in some instances, as in the Salford and Preston Houses of Correction, diarrhœa has been infrequent, although for several years their inmates were allowed less solid meat and bread than in other prisons where diarrhœa prevailed: it is argued, too, that a liquid diet, though it might produce looseness of bowels, could hardly give rise to acute inflammation of the large intestines or dysentery. Improved diet, moreover, has only mitigated, and not re-

moved the evil; and the officers of prisons and their families have generally not escaped. The prevalence of diarrhœa has varied according to the season and state of the atmosphere, and has been greatest when the disease has most raged among the population at large, as in the year 1842. Dr. Baly states, besides, that he has visited many prisons in different parts of England, and has met with none in which the prevalence of bowel complaints was remarkable, and the site, at the same time, free from obvious sources of malaria. In barracks, the production of diarrhœa by poorness of diet is out of the question, yet some, as the Tower of London, have been distinguished for its prevalence, attributable, probably, to the muddy moat then existing. The conclusion arrived at is, that an enfeebling diet renders the system more susceptible of the influences of an atmosphere slightly impregnated with malaria, which last is considered the general exciting cause of the malady, while the better nourished suffer less, or escape altogether; as happens constantly in aguish districts. The same remark applies in reference to the causes of Fever in prisons.

It is shown, by the result of an experiment on a large scale at the Millbank Penitentiary, that neither the fever nor the bowel complaints are due to the water in common use. Some obvious practical inferences, regarding the choice of a site, the necessity of drainage, and the improvement of diet in particular cases, conclude this digression. The author next proceeds to show that the large excess of mortality in some English prisons above that of the average amount in 32 county prisons, is only in part accounted for by the increased number of deaths from the endemic diseases before spoken of, and it is the deaths by these diseases that mark the influence of the locality.

"The average annual mortality per thousand prisoners from all causes, in the Penitentiary, (making the addition previously explained for the pardons on medical grounds,) has exceeded, by more than twelve (12·368) deaths, the total average annual mortality of thirty-two county prisons, calculated only from the deaths actually occurring in those prisons. And the deaths caused by fevers and bowel complaints will account for only 2 532 out of that annual excess of twelve deaths. On the other hand, the total annual mortality in the Wakefield House of Correction (without any allowance for pardons on medical grounds) has exceeded the average annual mortality of the thirty-two other county prisons, by rather more than eight (8·135) deaths per thousand prisoners, and of this excess 4·498 deaths per thousand prisoners, or more than half, have been due to fevers and bowel complaints." P. 185.

Having already compared the mortality of prisoners with that of the population at large between the same limits of age, and found the former to be excessive, he proceeds to compare the rates of mortality of the criminal class in and out of prison.

The very great mortality in prisons amounting, when fairly estimated, to 30·976 per thousand annually in the Millbank Penitentiary, and to 22·788 in the county prisons; as well as the established fact of the large increase of mortality among prisoners confined for some years, and the few deaths occurring during the first six months after admission, support the opinion, that the rate of mortality is augmented by imprisonment, and that it is not due to the class from which the prisoners are principally taken. Statistical results obtained in some districts remarkable for poverty and

wretchedness confirm this inference; which is shown in all probability to be applicable in America as well as in England. One cause mentioned by the author, as having undoubtedly been highly influential in preserving the health of prisoners in American penitentiaries, is their abundant and nutritious food. As regards America, the conclusion is, that imprisonment raises the annual rate of mortality per thousand from 15· to 20· among the whites, from 27·225 to the enormous rate of 70·10 among the colored people, and it scarcely admits of doubt that like effects arise in France and Switzerland.

III. DISEASES BY WHICH THE MORTALITY OF PRISONS IS CHIEFLY PRODUCED.

Fatal Diseases of the Prisoners in Millbank Penitentiary.

It has been shown before that the total excess of mortality from fevers, bowel complaints, and hepatic diseases in the Penitentiary, as compared with the metropolis, has been 4·682 per 1000 annually. The mortality from all causes in the Penitentiary has, however, been estimated at 30·976 per 1000 annually, while, in the metropolis, that for all persons between the ages of 15 and 70, has been only 14·707, thus leaving an excess of 16·269 deaths on the side of the Penitentiary, of which fevers and bowel complaints have produced 4·682, or little more than one-fourth. There remain therefore 11·587 deaths annually per 1000 prisoners to be accounted for. Now, it appears from a table formed to show the annual mortality from different diseases (exclusive of the three heretofore discussed, per 1000 prisoners in the Penitentiary, and the same number of persons between 15 and 70 years of age in the Metropolis, that the excess in the prison mortality under the classes of Epidemic Diseases, not including fever, &c., Diseases of the head and nervous system, abdominal Diseases, not including fluxes, and Diseases of undefined nature amounting in the aggregate to 2 332 per 1000 annually, is almost exactly balanced by the excess on the side of metropolitan mortality under the classes of Diseases of the heart, Diseases of the respiratory organs, exclusive of Consumption, Diseases of the genito-urinary organs, Diseases not classified, and violent deaths, amounting in the aggregate to 2·352. We have then remaining the two classes, viz., Consumption and other tubercular Diseases, which show an excess of prison mortality of 8·870 and 2·836 respectively, that is of 11·706 together, to account for the before unexplained excess.

This near approximation of numbers is striking; Dr. Baly proceeds to explain the plan on which he has arrived at it, in this our space does not allow us to follow him, we can only say that his assumptions and reasonings appear to us fair and satisfactory.

He then sums up thus:—

"Without any exaggeration then of the facts, it seems to me to be clearly proved by the medical records of the Penitentiary, that the mortality caused by tubercular disease has been between three and four times as great during the eighteen years, 1825 to 1842, among the convicts confined in this prison, as it was in the year 1842 amongst persons of the same period of life in London generally; and that three-fourths of the excess of deaths from all causes in the

Penitentiary above the rate of mortality of all persons in the metropolis of the same period of life, has been due to the prevalence of this disease; fevers and bowel-complaints having produced only one-fourth of that excess of deaths." P. 203.

It is subsequently shown that the proportion of persons affected with phthisis among the criminals when first received, has been far too small to account for any considerable part of the great mortality which that disease every year produced among the prisoners confined in the Penitentiary.

Fatal Diseases in the English County Prisons.

It appears, from the tables given, that, though consumption and other forms of scrofula have been more fatal to the prisoners confined in the county gaols and houses of correction than to the inhabitants of the metropolis, they have produced much less mortality in those prisons than in the Millbank Penitentiary. Yet this result does not militate against the belief that the tubercular cachexia, most frequently fatal in the form of pulmonary phthisis, is the disease which imprisonment has an especial tendency to produce. Even the mortality observed in these prisons from this cause is high, when it is taken into account that the average duration of imprisonment is less than two months. No inference on this subject can be drawn from the case of the convicts in the English hulks, for reasons already adverted to.

As relates to France, some reports published by the physicians of the Maisons de Correction at Nismes and Rennes, show that tubercular consumption has been the principal fatal disease in those prisons. Some confirmation of the same fact is derived from observations made in the Geneva and Lausanne Penitentiaries, though here the results have been obtained only on a small scale.

Fatal Diseases in the American Prisons.

The terms of confinement in the American prisons have been for the most part longer than in the Millbank Penitentiary, the records of these establishments are accurate; but there are no data for determining the increment of deaths due to pardons on account of ill-health; the calculations are therefore made without any allowance on this ground, a fact which should be borne in mind in drawing inferences from a comparison of the results.

The mortality among the white convicts is first considered in the Eastern Penitentiary, the Auburn and Charlestown State Prisons, and the result arrived at is that the mortality from consumption and hæmoptysis being 4·706 annually per thousand in the male white population of New York, it has been 12·864, 9·526, and 10·787 respectively in these establishments in the order in which they stand. It will be observed, that the greatest excess of mortality from these causes in these prisons above that of the general white population, viz., 8·158, falls short of 11·706, the excess of the Millbank Penitentiary over that of the London population from the same causes. Though allowance is to be made for the pardons not being taken into account, and for the prisoners being of a superior class in the case of the American prisons, our author does not shrink from avowing

his belief, that imprisonment in most of the American Penitentiaries has really exerted a less injurious influence on the health than confinement in the Penitentiary of Millbank.

We come next to inquire into the causes of death among criminals belonging to the dark races, and find that the rate of mortality from consumption and other tuberculous diseases being 11 per 1000 annually amongst the coloured male population of the City of New York, is observed to be 40 per 1000 in the Eastern Penitentiary; and even this estimate is probably below the truth. The reports of the Maryland Penitentiary show 28·490 to be the annual rate of mortality from these diseases among criminals of the white and coloured races mixed in nearly equal proportions.

An interesting inference regarding the white convicts is drawn from the experience of the Sing Sing Prison. Both the site of this establishment and the large proportion of deaths from diseases of a notoriously malarious origin, lead us to believe that it suffers pre-eminently from that source of mischief, yet its tubercular mortality of 11·265, is excessive compared with that of New York, which is for whites 5·304, greater than those of the Auburn and Charlestown State Prisons, which are 9·892 and 10·787 respectively, is less than that of the Eastern Penitentiary, viz., 12·864; each of which prisons has suffered in a very slight degree from diseases due to malaria, less than even New-York itself; so that we cannot avoid coinciding in the two-fold conclusion of our author, that, as far as our evidence goes, malaria must be considered incapable either of promoting or preventing the development of tubercular disease. This conclusion manifestly weakens the objection to the locality of the Millbank Penitentiary.

Dr. Baly conceives that it has been shown that the increased mortality in the Millbank Penitentiary, has been due almost wholly to the diseases which are characterized by the deposition of tubercular matter in different organs of the body, but principally in the lungs, and that it has further been shown that, in all prisons where convicts have been confined for long terms, the same state of things has prevailed. Farther on he gives some facts more in detail, establishing the belief that other forms of scrofula besides consumption have a tendency to become developed to a more than ordinary extent during confinement in prisons.

He reserves, for a second paper, the investigation of the causes on which this great mortality from tubercular diseases has depended. Among the most influential of which he places, 1st, deficient ventilation; 2nd, cold; 3d, want of active bodily exercise; 4th, a listless if not dejected state of mind, and 5th, poorness of diet. He concludes with the remark, that the facts that he has detailed do not justify any sweeping condemnation of imprisonment as a system of secondary punishment, but augurs far more favourable results from the measures already in progress for freeing this mode of punishment from most of the injurious conditions which have hitherto generally attended it.

We conclude this long epitome with the offer of our best thanks to Dr. Baly for the very elaborate and able paper which he has brought before the public; its full value can of course, only be appreciated by those who study it, yet our sketch is sufficient to show that it must possess the highest authority on the subject of which it treats. We shall hail with pleasure the appearance of his second paper.

A HISTORY OF THE BRITISH FRESHWATER ALGÆ. By *Arthur Hill Hassall*, F.L.S., &c. 2 vols. 8vo. Highley and Baillière.

COUNTLESS as are the works which daily and almost hourly teem from the press, the number of those which justly lay claim to originality, and which in any considerable degree advance the knowledge of the subject of which they treat, is proportionally small indeed. To this small number of original publications, that now before us pre-eminently belongs, it abounding in records of new and curious facts and productions.

The department of Natural Science, to the elucidation of which the History of the British Freshwater Algæ is devoted, while it has ever been considered to be one of the most interesting, was notoriously, up to the period of its publication, one of the least explored, and in consequence least understood, portions of our Flora, "the works and memoirs," to adopt the language of the author, "comparatively few in number which had then appeared, abounding with descriptions incomplete, inaccurate, or repetitions of the same productions and facts under different forms and appearances."

The comparative neglect with which the vegetation of our freshwaters has until recently been treated was most undeserved, for, while many of the species themselves are amongst the most beautiful objects in nature, the study of them all is of the highest interest and importance to the physiologist; for it is through these simply organised productions that we must first hope to arrive at a perfect knowledge of the all-important processes of Nutrition, Growth, and Reproduction, for it is in them that those processes are carried on with the fewest accessories, and with the least complication. Under each of these heads, and especially upon that of Reproduction, a number of highly curious observations are recorded.

The Freshwater Algæ are also rendered interesting by reason of the very opposite opinions and discussions to which they have given rise, one class of observers regarding them as animal productions, and another as subjects of the vegetable kingdom. The truth in this instance, as in many others, would appear to lie in the mean, thus it is probable that in certain of their attributes they are vegetable, while in others they are animal; in other words, that they form a close connecting link between the two arbitrarily constituted kingdoms of the organic world. The terms "animal" and "vegetable," when used to designate the higher forms of organization, are well understood, and to these they can scarcely be mis-applied. As we descend, however, to the lower types of organic life, the greatest difficulty, a difficulty often insuperable, is experienced in deciding upon the true position in either kingdom which many productions ought to occupy. All attempts at a strict definition, which, on the one hand, shall include every animal, and on the other, every vegetable, have hitherto signally failed. It is more consonant with reason and with our present information to conclude that no exact line of demarcation exists, and that the one organic division merges insensibly into the other.

The double attributes which pertain to many of the Algæ, will be evident, in some degree, from the following quotation :—

"At length the granules become perfected, and they are now seen moving restlessly about the interior of the cell, frequently striking against its walls, as though anxious to escape from the confinement of their narrow cell, and to rove about, independent beings, through the waters, in search of an appropriate abiding-place. Having escaped from the cells, which they are enabled to do, not as Agardh supposed, by the multiplied knockings of their beaks against its sides, whereby its fibres become displaced, but either by rupturing its walls, through their increased development, as in *Lyngbya*, &c., or by some special provision, as in *Vesiculifera Zygnema*, &c., they fall into the water, through which they speedily begin to move hither and thither; now progressing in a straight line with the rostra in advance; now wheeling round and pursuing a different course; now letting their rostra drop, and oscillating upon them, like (to compare small things with great) balloons ere the strings are cut, or like tops, the centripetal force being nearly expended; now altogether stopping, and anon resuming their curious and eccentric motions. Truly wonderful is the velocity with which these microscopic objects progress, their relative speed far surpassing that of the fleetest race-horse. After a time, however, which frequently extends to some two or three hours, the motion becomes much retarded, and at length, after faint struggles, entirely ceases, and the zoospores then lie as though dead; not so, nevertheless; they have merely lost the power of locomotion; the vital principle is still active within them, and they are seen to expand, to become partitioned, and, if the species be of an attached kind, each zoospore will emit from its transparent extremity two or more radicles, whereby it becomes finally and for ever fixed. Strange transition, from the roving life of the animal to the fixed existence of the plant! In exact correspondence with this, is what occurs with the Zoophytes."

One of the most singular of the many interesting particulars described in the work, is the fact of the colouration of vast extents of water by means of several species of exceedingly minute Algæ, different species imparting different tints. Thus ponds, lakes, reservoirs, and even portions of the ocean itself often exhibit various bright colours, occasioned by the presence of some minute Algæ diffused through the water. The Red Sea is now known to derive its name from an Alga of a blood red colour, which periodically manifests itself in its waters. This discovery was first made by Ehrenberg, so far back as 1819, but his account of it was entirely overlooked until after the publication of the letter of M. Evenor Dupont, addressed to his friend M. Isidore Geoffroy-Saint-Hilaire, in which he thus describes the extraordinary phenomenon of the coloration of the waters of the Red Sea:—

"You demand of me certain details in reference to the circumstances in which I gathered the *Cryptogamic* plant which I sent you from the Red Sea, and which you told me appeared a new species. They are as follow:—

"The 8th July last (1843,) I entered into the Red Sea by the Strait of Babelmandel upon the steam-boat the Atalanta, belonging to the Indian Company. I demanded of the captain and the officers, who for a long time navigated in these latitudes (parages) what was the origin of this ancient name of the Red Sea; if it was owing, as some have pretended, to sands of that colour, or, according to others, to rocks. None of these gentlemen could reply to me; they never, they said, remarked anything to justify this denomination. I observed then for myself as we advanced; whether the ship approached by turns the Arabian coast or the African coast, the red was in no part apparent. The horrid mountainous barriers which border the two banks were uniformly of a blackish brown, except where in some places the appearance of an extinct volcano had left long white streams. The sands were white, the reefs of coral were white also; the sea of the most beautiful cærulean blue. I had given up the hope of discovering my etymology.

"On the 15th of July the burning sun of Arabia awoke me suddenly by shining all at once, from the horizon without spot, and in all its splendour. I turned myself mechanically towards the window of the poop to seek a remnant of the fresh air of the night before the ardour of the day had devoured it. What was my surprise to behold the sea tinted with red as far as the eye could reach! Behind the ship, upon the deck, and on all sides, I saw the same phenomenon.

"I interrogated the officers anew. The doctor pretended that he had already observed this fact, which was, according to him, produced by the fry of fish floating on the surface; the others said that they did not recollect having seen it before. All seemed surprised that I should attach such interest to it.

"If it be necessary to describe the appearance of the sea, I should say that its surface was covered with a compact stratum of but little thickness, but of a fine texture, of a brick red, slightly tinged with rouge; sawdust of this colour, of mahogany, for example, would produce very nearly the same effect. It seemed to me, and I said at the time, that it was a marine plant. No one seemed of my opinion; so with a pail tied at the end of a rope I was able to gather, with one of the sailors, a certain quantity of the substance; this with a spoon I introduced into a white glass bottle, thinking that it would be the better preserved. The next day the substance had become of a deep violet, and the water had taken a pretty pink tinge. Fearing that the immersion would hasten the decomposition instead of preventing it, I emptied the contents of the bottle upon a piece of cotton (the same which I remitted to you.) The water passed through it and the substance adhered to the tissue. In drying it became green, as you actually saw it. I ought to add, that on the 15th of July we were by the side of the town of Cosseir; that the sea was red the whole day; that the next, the 16th, it was the same until near mid-day, the hour at which we found ourselves before Tor, a little Arabian village, the palms of which we perceived in an oasis on the border of the sea, below the chain of mountains which descends from Sinai, even to the sandy shore. A little after mid-day, the 16th, the red disappeared, and the surface of the sea became blue as before The 17th we cast anchor at Suez. The red colour had consequently showed itself from the 15th of July, towards 5 o'clock in the morning, up to the 16th, nearly an hour after mid-day; that is to say, during thirty-two hours. During this interval the steamboat, making eight knots an hour, as said the sailors, had traversed a space of 256 miles, or 85 leagues and a third.

"In the different works relative to Egypt and the Red Sea which I have had occasion to read, I do not recollect to have found mention made of a similar fact: it appears to me, nevertheless, but little probable that it has not been observed by others. I reproached myself for not having questioned the Arabian pilot whom we had on board, and who for twenty years traversed that sea. This idea unhappily presented itself too late.

"If it should be in your opinion worth the pains, I would demand new observations of the surgeon or officers of the Atalanta, for it would be easy for me to write to them by way of Alexandria."

Charlatans, calculating in advance the periodical returns of the phenomenon, were thus enabled to terrify and govern the populace, by pronouncing its appearance to be the certain forerunner of some dire calamity.

The uses of the Confervæ Mr. Hassall treats as four-fold; three only of these uses we shall here notice.

"The second purpose to which the *Confervæ* are subservient is one of great importance, being the purification of the fluid in which they dwell, laden, as it frequently is, with various deleterious gases, arising from the death and decomposition of various animal and vegetable substances; thus deriving their own origin,

for the most part, in the midst of impurity, they are the agents employed in removing this impurity, which salutary office they perform in the following way. Amongst the most noxious of these gases to animal life are carbonic acid and carburetted hydrogen; now carbon, the base of these, constitutes the pabulum, or food of plants. These two gases, then, the *Conferva* decompose, retaining the carbon for their own support, and setting free the oxygen and hydrogen; thus, not merely decomposing and removing what is hurtful, but restoring to the water oxygen, the essential to all animal life whether found in air or water. Seeing, then, the important purpose which these apparently frail and insignificant productions fulfil, who is there who would venture to remove even this one small and remote link from the chain of Nature's works, and would be answerable for the consequences of its removal? Who can tell what baneful influence might not arise, and spread disease and death through whole districts? a calamity which, even as things are now ordained, is occasionally permitted to overtake us. Should any individual be sceptical as to the influence of these productions, and whether a respiration of the kind I have alluded to, and attended with the same results, really occurs, let him put into a tumbler of water a little of the first *Conferva* which he may meet with in his next ramble, and, placing it in the rays of the sun, watch it for a short time: he will soon observe globules of a gas, at first small, but soon becoming larger, to collect upon the surface of the filaments, which, when they have attained a sufficient size, will quit their attachment, rise to the surface of the water, and at last lose themselves in the surrounding air. This will, I think, satisfy him that a respiration of some kind, is carried on; and should he wish to ascertain the nature of the gas thus eliminated, whether it be really oxygen or not, this may be done by procuring a considerable quantity of any floating species of *Conferva*, and placing it in a trough of water, over which should be put a glass jar also filled with water, having an air-tight collar adapted to it, so disposed as to catch the gaseous globules as they ascend. As soon as the glass jar becomes filled with the gas, let the air-tight collar be removed and a piece of ignited phosphorus be quickly plunged into the interior of the jar, when the brilliant and dazzling combustion which will instantaneously ensue will afford a proof conclusive of the nature of the elimination. The honour of this discovery, if it can be deemed one, for it is but the extended application of the common principle of the respiration of plants generally, is in this country attributed to Priestley; but so obvious is it that it scarcely required the penetration of a mind like his for its detection: Vaucher alludes to it cursorily.

"The third use of the *Confervæ* is a moral one. Every created thing, rightly viewed, is capable of imparting this moral lesson, be it the kingly lion or the spurned reptile; the beautiful and scented flower, or the more humble productions which have been engaging our attention. There is no imperfection acknowledged in nature, nor are there, strictly, degrees of comparison; everything is superlative, is best and perfect from the hands of God who made it, alike unsurpassable and inimitable.

"Then, lastly, there is the intellectual benefit derived by those who study this or any branch of Nature's works. There are those who regard the pursuits of natural history as trivial and tending to no useful purpose; but these are but superficial observers, with hearts and minds alike incapable of appreciating the depths and hidden beauties of the study. I maintain, in opposition to these, that there is room in the contemplation of, and search after, the laws and phenomena of animal and vegetable life and growth, for the exercise of an enlarged and enlightened understanding."

Elsewhere, Mr. Hassall expresses his conviction, that a good and useful paper might be made out of various species of Confervæ. It would be well that the trial should be made, as it might lead to some very important results.

Some idea of the originality of the History of the British Freshwater Algæ may be gathered from the following statement. In the most recent work on the Algæ of this Country, both marine and freshwater, 165 species are described as inhabitants of our fresh-waters; while, in the work under review, no less than 467 productions are figured and characterized. The number of species included in the genus Zygnema up to the date of Mr. Hassall's publication were 5, in that gentleman's volumes 43 are described.

An excellent feature in the work before us is the constant and copious reference which is made to the writings of various French and German naturalists, in which respect English writers are usually very deficient.

The style of the work is as popular and as pleasing as the nature of the subject admits of. There is a lengthened and valuable Introduction, in which the subjects of Growth, Nutrition, and Reproduction are treated *generally*, as well as under the different headings into families, lesser chapters, in which these processes are described more *in detail*. The entire volume of letter-press is, moreover, enlivened by the insertion of numerous striking and beautiful passages taken from the writings of some of the older naturalists, Linnæus, Ray, Haller, &c.

The volume of Plates, which are coloured, were executed by the author himself, a guarantee for their accuracy.

In conclusion, we would observe of Mr. Hassall's laborious and curious work, that it supplies a very great desideratum, not merely in the natural history of this country, but of the world at large, and that, from the circumstance of the Algæ forming so close a connecting link between the animal and vegetable kingdoms, one not less necessary to the Zoologist than the Botanist.

LECTURES ON THE THEORY AND PRACTICE OF SURGERY. By the late *Abraham Colles*, M.D. Edited by *Simon McCoy*, Esq., F.R.C.S.I. Two Vols., 8vo., pp. 756. Dublin, 1845.

WE have been accustomed to consider that one of the duties of an Editor of a work consisted in supplying it with a Preface; but the worthy publishers have taken the task upon themselves in the present instance, and favour us with an estimate of the value and peculiar merits of the "Lectures," which as might be expected, coming from such a source, is somewhat exaggerated. Merit, the work has, but it is going rather too far to characterize it as "a Body of Surgery," suited to the requirements of the student and young practitioner, when important subjects (*e. g.*, dislocations) are left wholly unnoticed, most others treated very superficially, and none completely. Why it is called "Lectures on the *Theory* and Practice of Surgery" we know not, since both publishers and editor rest much of its claim to notice upon the fact of the lecturer eschewing all notice whatever of prevalent theories, and his utter contempt for "writers on surgery," and "closet-surgeons," as contrasted with

practical men. But we are disposed to think that an enlightened view of the principles which should guide us is no wise inconsistent with the delivery of due practical instruction, the result of opportunities we may have been favoured with. A great defect in these "Lectures" is the omission of all notice whatever of any of the modern improvements in surgery, and of the writings of the author's cotemporaries; and in fact, although they might have passed current some thirty years ago, when they were probably first delivered, they will not bear comparison with the complete courses of instruction our students are accustomed to at the present day, and should not be offered to them as such.

But although very defective as a "Body of Surgery," the Lectures contain many useful and even valuable observations, delivered with great candour, and with the confidence which Dr. Colles' very extensive practice fully justified. They indeed much resemble, both in the colloquial form of their delivery, and in their want of systematic completeness, the observations delivered at the present day by most surgeons to their pupils in their Clinical Lectures—not substitutes for, but invaluable adjuvants to, the more regular course of surgical instruction—in which the lecturer does not feel it incumbent upon him to follow the subject he is illustrating in all its details, but dwells upon those points especially to which his own attention has been devoted, or to which he thinks that of his hearers can be most beneficially directed.

We will now extract several of the useful practical observations which abound in the work.

Opening Abscesses.—"A rule has been laid down in books to open an abscess in the most depending part, but it is a bad rule, for that in fact may be the thickest part of the wall of the abscess, and you are only to be guided in your choice of the best part to make your puncture, by selecting the *thinnest* part of its parietes. If you open it any where but in the thinnest part, what will the consequence be? Why, just this—that Nature will make her opening where she at first intended, and this, even though the opening the surgeon made be in the most depending part, and be discharging freely."

Erysipelas.—Delirium or Coma coming on *before* the local inflammation does not indicate danger; but this is not the case when the eruption accompanied by slight constitutional symptoms has already continued for two or three days. When the tongue is brown, dry, and hard, the fever going on, the case is very dangerous. Hardness about the inflamed part is the best symptom for distinguishing phlegmon from erysipelas. When there is a great deal of pain present, vesicles are very apt to degenerate into foul or gangrenous ulcers. "You will find it laid down in books, that when erysipelas ends fatally, it is by its receding from the surface to some internal part. Now this is never the case. I have examined several after death who died of this disease, and have spoken to others who made similar investigations, and never saw any thing to bear out this opinion myself, nor heard it from any one who did witness an instance of it." The full, hard, and rapid pulse with irritability of stomach at the beginning of erysipelas, is not usually advantageously met by bleeding, but by causing free vomiting with tartar emetic, and, after the stomach has been well cleared, continuing it in smaller diaphoretic doses.

Purgatives are likewise very useful. In the typhoid form of the disease bark is not of much use, and many cases said to be cured by it, were in fact instances of rheumatism, mistaken for erysipelas. Partial redness appearing simultaneously during ordinary fever, in remote parts of the body, has been also mistaken for erysipelas; but true erysipelas never appears in different parts at the same time; and, whenever the redness is even contiguous, but not continuous, it is not erysipelas.

"On the going off of erysipelas, it sometimes leaves a fulness behind it, which pits on pressure like anasarca, but which is readily distinguished from it by the thickened and roughish cuticle. Now, it is a remarkable fact, that if the skin be left in this morbid condition, it will be attacked a second time with erysipelas at some future period—it may be in three, six, or twelve months, but it will not escape another attack, one that will be more severe than the first, and which will leave a still greater fulness and thickness than the first did. When this happens, the patient will, in my opinion, be subject to returns of the malady for the rest of his life. Such a disease I should be inclined to call Chronic Erysipelas. I have tried every thing I could think of to cure this chronic form, and although in every trial I produced an amendment, I never completely succeeded with the succeeding affection, or in preventing a return of the erysipelas in its more acute form."

Mammory Abscess.—Abscess occurring after parturition produces hectic fever with great rapidity; but this disappears as soon as the matter is discharged; although in some cases it comes on even after this has taken place. Local treatment is of little or no avail, and active saline cathartics are the best medicines that can be given. If the abscess is opened early, much local irritation and profuse night-sweats are the consequence. Even when it is ripe it is better not to open it, unless, indeed, the matter is just under the cuticle; but in general you ought to avoid the lancet, for if there be any life or thickness in the parts you cut through, you excite fresh inflammation, and greatly increase the chances of other abscesses." Whether opened or not there will usually be more than one abscess. Sometimes the inflammation, after threatening suppuration even for as long as ten days, is terminated by resolution. When the patient's health is bad, immense improvement results from a change of air: and the local hardness which is left is most effectually removed by sea-bathing. The wound left after the discharge of the matter frequently gives rise to fistulæ. These must all be laid completely open into one, as, if any are omitted, the operation is ineffectual. "If in this proceeding there should be a small portion of the mammary gland insulated, you may as well remove it entirely; it can never be of any use as a secreting organ, and may, by its presence, retard the healing of the remainder."

We cannot approve of Dr. Colles' practice in these cases. A prompt opening of the abscess as soon as the existence of matter can be ascertained certainly much abridges the duration of the sufferings of the patient, and renders the formation of fistulæ, requiring so severe a proceeding for their removal, much less likely.

Contusion of the Scalp.—"Now you read that the bloody tumours of the scalp may be mistaken for a *depressed fracture*. Why, by a careless or superficial examiner it may be so. If you press the centre of the tumour with the

point of the finger it will yield, and you think you can feel the edges of a circular depression of the bone, and you are told you are to distinguish them in this way. Run your finger along the scalp towards the tumour, and before it gets to its soft yielding centre it will have to rise over a ridge round its margin, and then it will suddenly sink, which would not occur if it were really a depression in the bone; but there is a better and more obvious method to distinguish one from the other. If the portion of the bone which receives the blow be really depressed, you will always find that the scalp is depressed along with it, and there will be no tumour at all; and, on running your finger over the place you feel the depression in the scalp, and the finger will sink *gradually* into the depression."

Death from *Erysipelas of the Scalp* has been usually attributed to a metastasis of the inflammation to some part within the cranium; but Dr. Colles states, that both he and Mr. Wilmot examined the bodies of several patients, in order to investigate this point, without ever finding any traces of inflammation of the brain or its membranes. There is nothing peculiar in the treatment of the disease when it is seated in the scalp—free vomiting by tartar-emetic, and sufficient purging, being the most successful means of relieving it. When the disease has quite disappeared, the head should be shaved two or three times, as, if the hair is allowed to fall off of itself, it may not be reproduced.

Concussion.—A most fatal sign is furnished, when the respiration continues slow, while the pulse is rapid. "I never knew a patient under those circumstances recover, in whom the number of respirations and pulsations had not the natural proportion to each other." Dr. Colles does not believe we are in possession of any means of distinguishing symptoms which arise from concussion from those which are produced by compression. When we proceed to bleed the patient on his recovery from the first shock, we must always employ two stout persons to hold him, as, although he appears quite insensible, the instant he feels the prick of the lancet he starts forward with great force. The pulse is often very variable, and when beating but at sixty while the patient is lying down, it may be increased to 120 if he sits up or uses slight exertion.

"It will sometimes happen, that although when a patient is taken up after receiving the injury, he seems to have hardly any life in him, yet, by and bye, he begins to mutter, and after a little time he becomes perfectly delirious; but he has a method in the midst of the delirium. If left to himself, he will perhaps get up and dress himself; if he wants to make water, he goes regularly and looks for the proper vessel, and uses it like any other man in his sober senses. His pulse is, however, very quick; his movements unsteady; his eyes are morbidly acute. Now, I consider this a much worse case than when the patient is thrown into insensibility. I have, of my own knowledge, observed this delirious state to occur but in *extravasation*, but I believe it also occurs in concussion."

Tumours of the Eyelids.—These are not so easily removed as their great mobility would seem to indicate. When they are placed nearest the palpebral conjunctiva, they may be removed by dividing it, and thus a scar in the skin be avoided. "To know whether one of them is in front or behind the orbicularis muscle, all you have to do is to watch when the child cries, or to get the older patient to throw that muscle into action; and if it be next the skin the tumour will be only made more prominent, but if deeply

seated, it will be flattened by being compressed between the ball of the eye and the orbicularis."

Abscess of the Pharynx.—"There is a case which sometimes requires bronchotomy. It is this. A patient comes to you and complains of a sore throat and great difficulty of breathing; you examine his throat, and you see the tonsils in a natural state, as is likewise the velum palati, but look at the back of the pharynx, and you see its lining membrane protruded forwards. If you put in your finger, and press on this, you feel a softness, a want of resistance in the tumour—this is an abscess of the pharynx. Now, I have seen an abscess of this kind so large as to hold a quart of matter; I opened it with a lancet, and, although the patient was leaning forward, he was nearly suffocated with the sudden gush of matter. Such an abscess as this I would recommend you always to open with a flat trocar.

"In other cases, there appears to me a better operation than opening the trachea, and that is to get a common gum-catheter, cut off the end, leaving the eyes of the instrument on it, and introducing this through the nares into the larynx. There is no difficulty in doing this where we can get it through the nose, but there are some people who could not bear the instrument to be passed through the nose, and in such we must pass it through the mouth. Now, the great difficulty is to know whether the instrument has really entered the larynx or the œsophagus; you are told that you know this at once by finding whether air comes through the instrument or not—but air may come from the stomach as well as from the lungs. The way to know it beyond all doubt is, that if it has entered the larynx there will be a frightful convulsive cough and gasping at the moment of its entrance—you would really think the patient would die on the instant. But rest a few seconds, and this will gradually lessen, and at last subside, and the patient will afterwards bear the catheter, although with considerable distress; unless you pass the instrument through the nose, you can hardly, even with this test, be *quite* certain that it is in the larynx. * * * * * In introducing a catheter into the larynx, whether to allow the patient to breathe in such cases as I have spoken of, or for the purpose of inflating the lungs in persons apparently drowned, for instance, but particularly in the latter case, you will materially assist the furtherance of your object by pressing back the cricoid cartilage rather firmly against the bodies of the vertebræ, because by this manœuvre you close the orifice of the œsophagus; you will also draw forward the tongue, which will leave an uninterrupted and more direct course for your instrument into the larynx. If you require to pass a tube down through the œsophagus, you will do the reverse of this—namely, to make the patient keep his tongue back, or if he be unable, in his agitation, to comprehend you, to press it gently back yourself, by which the epiglottis and root of the tongue will protect the larynx, and make the road to the œsophagus more direct."

Compressing the Temporal Artery.—Too forcible pressure is often employed for compressing the wounded temporal or other superficial artery lying on a resisting part. In consequence, ulceration and secondary hæmorrhage may be produced. The artery is seen pulsating violently, and it is erroneously believed that nothing but very strong compression will prevent bleeding, whereas a graduated linen compress, fastened down by sticking-plaster, and perhaps a light roller, suffices. Whenever it is possible, the compress must be placed over the skin, as then the delay consequent upon the filling up of the wound, and the production of a large cicatrix, are avoided. When, however, it is desired to apply pressure to the artery itself, a small piece of sponge or agaric is to be inserted, and

allowed to make its way out of the wound of its own accord. Sometimes the little plug is found to be long held fast within the wound, notwithstanding this may be suppurating. the granulations having penetrated into the pores of the material employed. To prevent this, the sponge should be covered by a piece of fine linen before introducing it.

Wounds of Arteries.—Dr. Colles wisely omits no opportunity of placing before the young surgeon an account of the difficulties he will have to contend with; and thus graphically describes some of those attendant upon the taking up of wounded arteries:—

"Sometimes the wound of the artery is not within two or three inches of the external wound. Suppose a man gets a stab of a knife in the arm, the knife runs up two or three inches, and then wounds the vessel—what are we to do in that case? Why, we are told the case is very simple—that all we have to do is to thrust a probe into the wound, and that it will of course guide us to the injured vessel, when we can slit up the intermediate parts, get at the artery, and take it up! No such thing—the probe will, in fact, run in any direction in which it is pushed, and will not lead to the artery at all except by mere chance. But, suppose it does lead to the spot where the artery is, you think, of course, it would be a very easy matter to take it up and tie it; it is not. We may talk as we please about our fine operations, but I protest I do not think in all surgery there is an operation *half* so difficult as taking up a wounded artery. You look and you see the blood coming, and you think you are just at the wounded spot of the vessel; but, perhaps, the artery is wounded an inch, or an inch and a half, or two inches from where you see the blood issuing, and the difficulty is increased if the operation is delayed for eight or ten days: you think you are well acquainted with the relative situation of the parts, and on cutting down you are surprised not to find the artery. Although you have two inches of it exposed you can neither see nor feel it pulsate: one of your assistants will cry out that he has it, but no one can feel it but himself, and it turns out that it was the pulsation of the artery in his own finger, which he mistook for that of the artery. Another thinks he can see the pulsation, but no one else can. You have no conception of the difficulties of the case. If you will make up your mind that you will not find the artery so superficial as you might, from mere anatomical recollections, expect, you will get rid of one of the causes of embarrassment; take your time, and you will get rid of another. It seems very plausible to say, in looking for a wounded artery, follow the track of the wound in the part, and you *must* come at length to the vessel, but it is very difficult even to trace the course of the wound; the cellular substance is everywhere stuffed with blood—nerves, arteries, tendons, and muscles, are all of the same colour; they are all out of their position; you lose your way among them, and the only way of finding it again is by dividing fresh parts; even when you are directly upon the wound of the vessel, you will not recognize it; for the contact of the air will prevent it bleeding in many instances."

Retention of Urine.—Among the causes of this, enumerated by Dr. Colles, is a *diminished sensibility of the bladder*, occurring in elderly persons, especially such as are engaged in sedentary or studious pursuits. After imperfect evacuation of the contents of the bladder has existed for some time, the patient, usually after a long sleep, finds himself unable to void his urine at all. Sometimes, after a few hours, some urine dribbles away, and continues to do so; and, as little pain is felt from the distension, advice is sought not for the purpose of relieving the retention, but for that

of enabling the patient to *keep* his water. And yet if the bladder be not emptied, the patient will be seized with fatal urinary fever. This is attended with its cold, hot, and profuse sweating stages, just like an ague, but differs from this in the irregularity with which the paroxysms come on. Patients suffering from urinary fever are said to emit an urinous odour from the skin and breath; but such is not the fact, such odour never occurring, unless some urine dribbles away and impregnates the bed-clothes, &c. In slighter degrees of urinary disease the disposition to this fever is shown by the great ease with which the patient becomes chilled. Blisters and other remedies proposed for this form of retention are of no use, the proper treatment being the passage of a catheter every six or eight hours. There is a form of retention to be carefully distinguished from this. It likewise occurs in the aged, and consists in very frequent passing of a spoonful or two of urine, which, however, eases the patient for a time. On placing the hand on the pubis you find no tumour, the bladder being very contracted in size. If, in such a case, you once use a catheter, the patient will never again do without it as long as he lives. You should keep him quiet, and upon moderate diet for a few days, and the irritation will subside. Demulcent drinks, as oatmeal tea, and honey, may be given, and, if there is much pain, an opiate suppository or enema should be employed.

In allusion to the difficulties in the detection of retention, Dr. Colles observes:—

"I mentioned but very cursorily how you were to know when there was really retention of urine; why, to read books written upon the subject, one would think there was nothing more easy. Now, I think, that sometimes there is nothing in surgery more difficult. You are told that all you have to do is to lay your hand above the pubis, and you will feel there the tumour of the distended bladder; and, to make the matter quite sure, you have only to introduce your finger into the rectum, and you will feel the fluctuation in the bladder pressing against it; but this is all nonsense. If a man gets an injury of the spine, with paralysis of the bladder, you will certainly have these tokens of the fact, and if you have a long finger, and there be no disease of the prostate gland, you may sometimes be able to feel the distension of the bladder through the rectum; but this is the very case where such proofs of retention of urine are not at all required, for you see what has happened, and you know the consequence; but it is in the *diseased* bladder, where the coats are thickened and contracted, that nothing can be felt to indicate retention. If, after death, you take out the bladder of such a person, and lay it on the table before you full of water, you will not be able to feel a fluctuation, let alone through the rectum, where besides the additional thickness of the parts you have to feel so delicate a thing as fluctuation through, you have no means to make with proper effect, a counter-resistance to your finger in the rectum, and the same fallacy would follow such trial as if you had tried to ascertain the existence of a collection of matter anywhere by feeling the part with one finger alone. But, besides this, the contraction of the sphincter on your finger is so strong, that it deadens its sensation, and you can feel nothing distinctly. * * * * * * I think you will always know in these cases that there is retention by passing your finger down along the linea alba, and when you come to the symphisis, you will feel just above it a hard, small, lump, just the top of the diseased bladder, containing urine, and retaining it, although much contracted. I have not had an opportunity of trying this, however, since it occurred to me."

Fistula in Ano.—Although this is usually found in the aged, sedentary, or diseased subject, it is at other times met with in young, active, and robust persons. When the abscess forms which is to lead to fistula, it must be promptly opened, without waiting for its pointing, or the cellular tissue about the rectum will become extensively implicated. When the abscess occurs in unhealthy subjects, it is sometimes very slow in its progress, occupying perhaps a month, and exhibiting a hard swelling, but no redness, and, what is strange, not manifesting a tendency to spread. These persons are commonly the subjects of disease of the lungs, the progress of which is delayed by the formation of the abscess about the rectum. Observing this, Dr. Colles has sometimes endeavored to maintain a discharge from these fistulæ, but he has been seldom able to keep up any such derivative effect. When a complete fistula is ascertained to exist, there is no other means of treatment, upon which we should place the least reliance, than its complete division through the gut; but, if we find the patient is the subject of a grave pulmonary affection, we must decline operating. There are also local reasons for doing so.

"If, on examining the fistula with a probe, you find that it extends very high up—that is, beyond the length of your finger introduced into the rectum, you should not operate, because you would probably wound the trunk of one of the hæmorrhoidal arteries, before it divides into branches, or some considerable venous trunk, and a hæmorrhage be the result, attended with some danger to the patient, and often very great difficulty and trouble to the surgeon to suppress it. If the course of the fistulous canal be not parallel to that of the rectum, that is, if, suppose, the upper part of the canal be a considerable distance from the rectum, and its lower part near it, or *vice versâ*, you should not operate; if the fistulous canal be parallel to the rectum, and that on passing a probe up into it you find every part of the canal even an inch distant from the coats of the gut, as felt by your finger in the latter, that distance is no objection to the operation. In making these examinations of the disease, you should observe one thing—not to introduce the finger into the rectum first, and then the probe into the fistula, but introduce the probe first, and then your finger; for, if you should distend the gut with your finger, you may not be able to trace the exact course of the fistula afterwards with the probe. In introducing a probe into a fistulous canal, take care that it is really passing in the course of that canal, otherwise you may be pushing it through the cellular substance in a wrong direction; in fact, little force will make it go in any direction as well as the right one."

When the knife has entered the gut, great force will be required, if the surgeon in cutting out merely *pulls* it towards him. He should employ a *sawing* motion, keeping the point of the bistoury against the point of his finger in the rectum. In dressing the wound with dry lint, this should be introduced on the probe first into the rectum, and pushed laterally from thence into the sinus, for by pushing it in at the wound itself, we can never be certain it has reached the bottom of the cavity.

Fissure of the Rectum.—This occurs in patients otherwise healthy, and is manifested by no external appearance. On examination, the rectum feels at first healthy, but, "on closer investigation you will find a fissure, perhaps not half an inch long, in the mucous membrane of the gut, and extending in depth only through this membrane, and it may be seated at the back, or at either side of the bowel." There is a symptom, however, which

indicates this disease even more certainly than an examination of the rectum itself, viz., the existence of a distinct interval of from ten minutes to one or more hours, between the passage of a stool and the production of a most violent, burning pain. Boyer's procedure of dividing the rectum through the fissure gives effectual relief, no dressing of any kind being required. Dr. Colles has relieved cases, where this operation was declined, by rubbing lunar-caustic on the part affected.

Syphilitic White Swelling.—"There is a form of white-swelling of the knee, which I wish particularly to call your attention to, as the distinguishing it from others is absolutely necessary to successful treatment, for its nature is totally different from all others. It is this: patients who have secondary syphilis will often get a pain and effusion into the knee, like the white-swelling of children, and it is a true and perfect symptom of the venereal disease in the secondary form. A pupil of mine saw a case of this kind in a hospital in London, and mentioned to Sir A. Cooper what he thought it was. Sir Astley said he was mistaken, but that to satisfy him, he would give the patient mercury—he did so—the knee got well under it—and Sir Astley himself declared it was the first case of the kind he had ever seen. This case may be distinguished from common white-swelling by one remarkable symptom—viz., the popliteal space is not filled up, as it always is in white-swelling. In the acute cases of white-swelling, you will cure nine cases out of ten by throwing in calomel as quickly as possible."

The Venereal Disease.

The Lectures relating to this subject are the best in the work. Dr. Colles is a determined advocate of the mercurial treatment of syphilis and its sequelæ, and delivers many important practical precepts for the due regulation of this. Before noticing some of these we may extract an observation or two upon

Gonorrhœa.—Discharges produced by stricture, or urinary disease, are often confounded with this, and are chiefly to be distinguished from it by the fact of their coming on much sooner after connexion than gonorrhœa does, and unsucceeded by inflammatory symptoms. Persons liable to gout or rheumatism may have urethral discharges also, not to be distinguished from a gonorrhœa. Dr. Colles believes that clap is by no means so common a disease as it is generally supposed to be; and that chancres are much more frequently met with. Injections are very often useless from the inefficient manner in which they are employed. The point of the syringe should be introduced far into the urethra, the fluid slowly injected, and the instrument not withdrawn until some time afterwards—the fear of the injection penetrating too low down, being quite groundless. In most cases, two syringe-fuls thrown in three times a day suffice. Although low diet, aperients, and repose are adapted for the majority of cases, some subjects, in whom the discharge is usually thin and unhealthy, will thrive best upon a more generous regimen. *Chordee* is often kept up by other causes than clap, as stricture, &c. When seized by it, the patient may be relieved by getting out of bed and placing himself on his elbows and knees, when the chordee stops at once. There is sometimes considerable hæmorrhage from the urethra which excites unnecessary alarm, as it is frequently beneficial. When *both* testes are morbidly sensitive, so

as not to bear the slightest touch, the affection is purely sympathetic, and hernia humoralis need not be feared; but this is to be expected when the uneasiness proceeds along the chord, and is confined to one side. Hernia humoralis arises more from constitutional causes than local extension, and is preceded by fever. An emetic given quite early and attention to diet will cut short the disease, which rarely appears during the inflammatory stage of gonorrhœa, and never attacks both testes at once, although these may become alternately affected, even two or three times. Sometimes gonorrhœa gives rise to most distressing irritability of the bladder, and then to complete retention. Hip-baths and anodyne enemata must be had recourse to, but, if by these means you cannot give speedy relief, the catheter must be used, for, if this be delayed too long, the patient will ever after be unable to pass water without an instrument. A large one is introduced with most ease. The practice of stimulating the urethra to reproduce the discharge, which has become suppressed by the febrile action preceding hernia humoralis, is a very useless one.

Venereal Hectic from the Non-Mercurial Treatment of Syphilis.—Dr. Colles does not deny that genuine syphilitic sores may be healed without mercury, but truly observes that, supposing this were the most eligible proceeding, which is not the case, the consumption of time, and the necessity for the confinement of the patient would render its adoption in private practice impossible. But, even where these requisites can be fulfilled, the patient is often no gainer.

"A man who has had his chancre cured without mercury has sometimes a hard knob or tumour remaining where the original chancre had been, sometimes as large as a filbert, of a bluish colour, and without pain. It gives him no trouble—but there it remains; now, in such a case, you will find that, from the time the chancre is healed, his health begins to decline—he falls into a hectic state. Such a case came across me in a state so far advanced in hectic that I thought he was beyond all aid. I decided at once the man was labouring under syphilis. I gave him mercury, and in eight or ten days he was at least safe, and finally recovered perfectly under the mercurial treatment. * * * You will not succeed in relieving these cases by trifling; you must give mercury at once, although cautiously, and in small doses. I have seen some more of these cases, and some closely resembling them, which followed an imperfect cure by mercury, carelessly or injudiciously exhibited; these cases are, however, rarely met with. Another man gets his chancre healed without mercury, and (as soldiers have been the subjects of these trials) he is thought only to be evading his duty when he complains to the surgeon, and, as a military surgeon informed me he gets into a state of constitution, that confounds all previous knowledge of disease.

"In some of these cases we shall have a man with both primary and secondary symptoms existing at the same time—with febrile action going on either of the inflammatory or typhoid type, of the irritative or hectic kind—with all the animal powers reduced to the lowest ebb—and perhaps an eruption coming out at the same time on the skin, to which a due share of the fever may be attributed, but altogether in a most anomalous and deplorable condition. To venture on mercury in such a case, can be only from the experience that nothing else seems to produce much effect, and after the first trial, from seeing its success."

In such cases, Dr. Colles employs the remedy very cautiously, rubbing in only ten or twelve grains of the *ung. hyd.* or giving three or four grs. of

pil. hyd. every night, prescribing bark at the same time when the system is much depressed.

Modes of Administering Mercury.—Dr. Colles believes *inunction* to be the best means of affecting the system. The quantity to be used at one rubbing should be divided into three or four portions, and each well rubbed in before another is begun with. The friction should be performed by another person, the patient not being usually competent to the requisite exertion. If the patient cannot remain within doors, mercury must then be exhibited internally, when, however, it is liable to act on the bowels. To prevent this, we must not be in too great a hurry to add opium, as frequently in two or three days the irritation will subside of its own accord, and not return unless the preparation given be changed, or the dose too much increased. Calomel affects the mouth more quickly than other preparations, but is more apt also to act on the bowels if it be not combined with opium. Corrosive sublimate causes the rapid disappearance of some of the secondary symptoms, but the cure effected by it is not radical unless it be followed by some of the other preparations. Under favourable circumstances the mercury should manifest its effects in a week or ten days, and, although there are great differences in this respect, if no effect be produced at the end of a fortnight, the mercury should be stopped for a day or two, the patient purged, and a couple of warm-baths given him, when the mouth will frequently become sore, although the mercury has not been re-commenced. If the system resists the mercury we must not endeavour to produce the effect by increasing the quantity given, but examine the condition of the health, and thus, if we find fever existing, as indicated by a *dry* mouth, we must suspend the drug until this is relieved.

"There is nothing more important to remark than the condition of the gums under the use of mercury, and the degree of salivation produced. The gums may swell and ulcerate, and yet the mercury is disagreeing with the constitution, and doing no service to the disease. If the gums swell, remaining red however, and a salivation comes on, all is right; but, if it causes *ulceration* of the gums—if the gums are receding from the teeth, and that there is *no discharge of saliva*, mercury is doing no good, but mischief. If you continue to use it without this effect being produced, you must do one of two things—either double the dose of mercury, and by so doing, when you least expect it, throw your patient suddenly into a profuse salivation, which you will not perhaps be enabled to control; or you must retrace your steps, and alter the constitution by attending to the bowels, or doing whatever else seems indicated in the particular case, and when this is done, a proper salivation will often be the consequence, without another particle of medicine being given. * * * * * * * Now, mercury, from peculiarities of constitution, cannot be made to affect the gums of all, and in some of these cases it will affect the throat instead. About the usual period it should be expected to show itself, the patient will experience some uneasy feeling in the throat, and, on your examining it, the soft palate will be found thickened and red, and an ash-coloured slough on one or both of the tonsils. This would spread rapidly if the mercury were rashly pushed without care and attention to the constitution. Although this is a local demonstration of the action of mercury, it is not one on which I should wish to place much reliance as a curative for the venereal disease; you must sometimes, however, be content with

it, as no other can be had, and I must admit I have cured the primary disease without other local effect of mercury."

Dr. Colles does not advocate the production of anything beyond a moderate action on the mouth, which, however, is to be maintained until all induration has disappeared. The endeavouring to force mercurialization upon systems which are little susceptible of its influence by means of very large doses, may give rise to a profuse salivation, without the consolation of forwarding the progress of the case. When we are aware of this peculiarity in a case, we should commence treating it by *small* doses. The chancre is sometimes healing under the mercury, when the treatment being impatiently urged on, the sore puts on a fungous or spreading character, when all mercury must be discontinued. When fever is developed during a mercurial course, too, the drug must be discontinued. If, after the mouth has began to be affected, the patient neglects himself, and allows the effect to subside, much more mercury will be necessary to reproduce it than was at first requisite to induce salivation.

Bubo.—It has been said that, if a chancre is healed up suddenly, a bubo will be caused; but, in truth, this results from the too sudden and violent effect of the mercury upon the constitution, and furnishes an additional reason for the cautious employment of the drug. In proof of this, when the chancre is not doing so well and a bubo is threatening to form, if the mercury be suspended for a day or two, and a purgative given, the sore will recover its healthy appearance, the bubo diminish, and the patient perhaps recover without requiring any additional mercury. But a case may present itself in which no mercury has been used, and in which chancre and bubo are both present, and for this, mercury is the proper remedy, which must be employed even though the bubo threatens to suppurate, and may seem at first to be the worse for it. When, however, a bubo continues to get worse under the use of mercury, and induces fever, the medicine must be suspended. It is of very little consequence whether a bubo, which has begun to point, is allowed to burst or is opened by a lancet; but we must at all events never meddle with one that is hard and unripe. A bubo occurring in a person of weak, lax, habit, or in deranged health, and which remains indolent and flat, the skin over it being of a bluish or purple colour, requires to be opened by a large incision completely traversing this diseased skin. There is no advantage derivable from opening any description of bubo by means of caustic. When a bubo that has been opened forms painful fistulous canals towards the scrotum, mercury, which has been given in excess, must be suspended, the cavity of the ulcer stuffed with red precipitate, over which a pledget of tow is firmly bandaged, and measures taken which may contribute to the improvement of the general health. No benefit attends the division of these fistulæ.

Venereal Eruptions.—"You do not observe in syphilitic eruptions what is seen in other eruptions to which they have been thought somewhat analogous—namely, that the whole of the eruption comes out at once, that is, within a few hours. In the syphilitic, you may see it declining in one part and appearing in another at the same time; you very often have an opportunity of observing it in several stages of its progress at any time during the first month, until it all at last fades away, at no determinate period from its first appearance. Sometimes the eruption is

extensively spread over the surface of the body, but at others it is confined to one region, or even to a spot you might cover with your hand. You might, perhaps, suppose that the more of the eruption that appeared the more mercury should be required for its removal—but, I think, the very reverse is the case. I think, where the eruption comes out fully and fairly, it yields more quickly and completely than where you have only a few spots here and there. Some suppose there is great advantage gained by treating these eruptions *early* with mercury; but I am far from an unconditional acquiescence in this notion. I think you may begin to prescribe mercury too soon, and for this reason; the eruption is ushered in with fever, and among many individuals in this state, you will see every degree of severity in the symptoms of this fever, from the most trifling to the most intense: but, whether mild or severe, your first duty is to remove the fever; for, if you give mercury during the eruptive fever, you will not do the eruption one bit of good, but will probably do the patient a mischief."

Mercury in large doses does much harm in these syphilitic eruptions; and Dr. Colles states, that they are cured with great rapidity by rubbing in from 10 to 20 grs. of *ung. hyd.* or giving from 3 to 5 grs. of pil. hyd. every night, either alone or with tonics, or mild diaphoretics. The scaly eruptions fade quickest under this treatment, then the papular, and the copper-coloured blotch. Rupia will, however, not tolerate the employment of mercury; and the pustular eruptions require it to be used in the most cautious manner. In cases where the mercury acts beneficially, it should be continued for at least six weeks, or the eruption will be reproduced, although in a more manageable form. When an eruption is situated in the face, the disfigurement may be most speedily removed by giving corrosive sublimate; but the treatment must be finished by friction or blue-pill, or some other secondary symptom will follow.

Syphilis combined with Scrofula.—Dr. Colles has many interesting observations upon the modification which a scrofulous condition of the system impresses upon syphilis, and by no means agrees with those who prohibit the employment of mercury under such circumstances—having indeed seen some of the worst results spring from the non-mercurial treatment in these cases. We have only space to extract one or two of his remarks.

"So far am I from being afraid of inducing salivation in those complicated cases, that I am on the contrary desirous to bring it on quickly,—much more so than I would be eager to do in a common case, and by the practice I have witnessed the most beneficial results. I am not at all disposed to deny that if mercury, when given in these cases, should not exhibit itself in the proper manner in the gums and salivary glands, but that it may and probably will exasperate the superinduced scrofulous affection, but from what I have endeavoured to impress upon you concerning the salutary action of this drug in any case where salivation may be necessary, you may readily understand that our present case is but another example of a general rule, and not an exception to that rule, as many seem to consider it. What I do then in instances where the glands of the neck become affected through the venereal stimulus is, when I do not see the mercurial ointment or blue-pill affect the mouth quickly, I order calomel, with or without opium, to be added to the other form, and when the gums become touched, and some ptyalism produced, the secondary venereal symptoms rapidly recede, the swollen glands grow smaller, and if one of them has opened into an ulcer it takes on a healing disposition, and frequently cicatrices by the time we judge enough of the medicine has been given to cure the venereal affection."

The preceding observations are applied especially to the case where the glandular affections are excited by the secondary venereal symptoms; but wherever the patient is under the full scrofulous action when he contracts the syphilis, there is no reason why full mercurial action should not be induced, and the syphilitic symptoms will yield as readily in this case as in a less complex one. So, too, even in patients threatened with phthisis, mercury must be cautiously given when they become the subjects of syphilis, provided that the case has not gone so far as to produce even slight hectic, when mercury will do harm.

Secondary Venereal Ulcers.—These, like primary ones, will sometimes heal before the constitution has been sufficiently impregnated with mercury, and if this be left off too soon, or irregularly administered, numerous and harassing relapses are sure to occur for months, or even years. Not only may the practitioner be deceived by the sore thus healing too speedily, but also by its seeming at first to get worse instead of better under the use of the drug. A feverish state of the system, or other causes of general disturbance, may give rise to this, and yet, when the mercury is cautiously, but effectively, continued, all is found to go on well. It requires, sometimes, great courage to persevere, in spite of apparent contradictions, but nothing is so mischievous in these cases as timid half-measures. It is not at the *beginning* of a mercurial course that we must stop the treatment on the first unfavorable appearance occurring, for this may arise from causes independent of the specific action of the medicine. If, however, after full action is established, a change for the worse occurs, it must be at once suspended.

The Lectures abound in useful practical remarks upon the diagnosis and treatment of the various secondary symptoms; but we have not space for further extracts. Dr. Colles certainly extends the application of mercury to many cases usually thought to forbid its employment; and, indeed, there hardly seems any case in which he does not think it may, by the aid of due modifications in the modes of its administration, be advantageously used. We believe that modern practitioners will judiciously prefer in many of these secondary symptoms, having recourse to the *iodide of potassium* in full doses. We, however, cordially agree with the lecturer in his numerous protests against attempting to treat the primary symptoms of syphilis without mercury. Their removal may sometimes, though certainly not always, be accomplished: but where are the advantages gained, and yet how great are the risks incurred. In concluding our notice of the work, we may repeat the opinion we expressed at its commencement; that, although these "Lectures" are very imperfect, considered as a course of instruction upon Surgery, they contain much valuable practical matter.

PHYSIOLOGIE PATHOLOGIQUE, OU RECHERCHES CLINIQUES, EXPERIMENTALES, ET MICROSCOPIQUES, SUR L'INFLAMMATION, LA TUBERCULISATION, LES TUMEURS, LA FORMATION DU CAL, &c. Par *H. Lebert*, Docteur en Médecine et en Chirurgie, &c. Accompagné d'un Atlas de Vingt-deux Planches Gravées. A Paris, 1845.

Pathological Physiology, or Clinical, Experimental, and Microscopic Researches upon Inflammation, Tuberculisation, Tumours, the Formation of Callus, &c. By *H. Lebert*, Doctor in Medicine and Surgery. Two Volumes 8vo., with an Atlas of Plates.

THIS work makes a near approach to what, in former years, would have been called a treatise on morbid anatomy; it differs, however, in this respect, that it comprises "clinical studies, experiments on animals, and microscopic observations," and thus embraces many details of much interest to the pathologist, physiologist, and minute anatomist. The author appears to have a just conception of the mode in which such an inquiry ought to be prosecuted: "It is necessary," he observes, "before approaching the study of pathological anatomy and physiology, to understand the normal structure of the organs and tissues better than it is taught in the schools; it is, moreover, requisite to learn well the mode of applying the microscope, and to possess exact notions respecting the fundamental forms of organic matter; and, lastly, in order to comprehend the organism when fully formed, it is necessary to follow, step by step, the development of all its constituent parts, to study the inferior organisms of the two sub-kingdoms of organic nature, and to prosecute comparative anatomy, general and microscopic anatomy, and embryology." (*Introduction*, p. x.) It may be proper to premise, that M. Lebert has enjoyed extensive opportunities of carrying on his researches in the Parisian Hospitals, owing to the assistance of MM. Andral, Velpeau, Cruveilhier, Louis, and other distinguished professors.

The first subject treated of relates to the State of the Capillaries, and of the Blood itself in Inflammation. The author, without denying the utility of observations and experiments made on the lower animals, contends that conclusions drawn from this source ought never to be adopted, until it shall have been shown that they are conformable to clinical observation, and to the microscopic examination of the capillaries in inflamed tissues of the human body; he further conceives that these two latter modes of investigation ought to serve as the essential basis of all doctrines relative to the molecular changes produced by inflammation. Agreeing in the necessity of great caution being observed in deducing conclusions from researches confined to animals, we need hardly point out, that this is, after all, the only source from which an actual knowledge of the state of the living vessels in inflammation can be obtained; nor that the important changes induced by death, especially in the state of the blood and its distribution in the several divisions of the vascular system, will always render

the evidence of post-mortem examinations a very insufficient test of the condition of the capillaries during life.

After noticing the well-known phenomena occurring on irritation of the small vessels—the accelerated movement of the blood with a temporary narrowing of the capillaries, speedily followed by a retardation of the current, often amounting to a complete stasis, accompanied by a dilated state of the blood-channels, the author points out two remarkable changes, which have, however, been seen and described by other observers. The first of these changes relates to the position of the red particles, which, instead of floating, as they do in health, edgewise, and, speaking of the frog, with their long axis corresponding to that of the blood-vessels, begin to move on their surfaces and with their long diameter turned across the area of the capillaries. The second change noticed is thus described:—"When the stasis is complete, the vessels appear filled with a reddish mass, in which the particles may still be recognised, a circumstance depending on the liquid part of the blood becoming tinged with red; so that, when one of these vessels is opened under the microscope, globules are seen cemented together by a fibro-albuminous liquid, which acquires more and more the tint of hæmatosine. Soon after this, reddish serum transudes through the walls of the capillaries, and thus diffuses the redness all around the vessels in the parenchyma of the inflamed tissue."—(*Tome* I., p. 9.) This coloration of the serum, one of the latest discoveres of minute anatomy, offers a more satisfactory explanation of the most striking among the physical signs of inflammation, redness, than pathology had before possessed. It is doubtless dependent on the laws of endosmose, resembling the passage of the hæmatosine through the walls of the blood-vesicles (a more expressive term of the cell-character than that of particle or corpuscle) when these are placed in water. The phenomenon is not, however, indeed cannot be, the result of simple stagnation, but of some change induced in the qualities of the blood by the inflammatory process; for stoppage of the circulation in the frog's foot, unaccompanied by irritation, does not produce the tinting of the serum.

M. Lebert gives the result of two hundred observations made on the human body, in all their microscopical details, as far as that was possible. He could never seize by direct observation the first effect of inflammation, the acceleration, namely, of the blood and the contracted state of the capillaries; but the other changes—congestion, stagnation, dilatation and tortuosity of the vessels, diffused redness of the inflamed parts owing to the escape of the hæmatosine from the red corpuscles, were, it is affirmed, distinctly recognized. "One of the most ordinary consequences of the turgescence of the small vessels, and of the arrest of the circulation within them, is the rupture of a certain number of these canals. Many reddish excretions, such as the expectoration of pneumonia and the alvine evacuations of dysentery, which were formerly supposed to be merely tinged by the colouring matter of the blood that had simply transuded, show under a microscopic analysis a considerable quantity of the red particles, a certain indication of the rupture of the capillaries."—(*L. c.*, p. 13.) In the justness of this latter remark we entirely coincide, it having long been our opinion that the blood discs never pass in an entire state through the walls of the minute vessels.

In considering the often-disputed question respecting the formation of new vessels, the author denies that they are ever developed independently of the pre-existing vessels; and resting on observations made on the tail of the tadpole and on the area vasculosa of the chick, he conceives that in inflammation the obstruction arising from the stagnation in certain vessels, causes an increased pressure upon those in the immediate neighborhood (and so far he is doubtless correct,) the walls of which yielding, form, "by a kind of vagination," lateral prolongations. These vascular arches promptly reaching either the neighboring capillaries or small veins, readily excavate an opening, being continually pushed on by the same impulsive force of the blood to which they owed their origin. As this subject has been lately fully investigated in this country, especially by Mr. Dalrymple and Mr. Travers, it need not detain us longer than to state that, of all the many theories advanced, the one just noticed seems to us the most mechanical and unsatisfactory.

So much has been of late years written on the microscopic character of fibrine, the exudation corpuscle, pus, &c., that we shall only briefly notice M. Lebert's observations on the last-named fluid. It is well known that purulent matter consists essentially of a solid portion (pus globules) and of a serum (liquor puris;) it also frequently contains oil globules, and minute crystals. The serum may be usually obtained by allowing the pus to stand for a few hours in a glass, when the globules subside; or it may be separated by careful filtration. "Thus isolated, the serum is perfectly limpid; it has the color of white wine, slightly tinged with green; and, although solid matter can no longer be detected in it by the microscope, it retains to a great extent the properties of entire pus. Thus, in injecting it into the vessels of a rabbit, death is caused as if perfect pus were used, only more slowly; dogs in general offer more resistance when pus is thrown into the veins, and the serum alone does not destroy them." (*L. c.*, p. 40.) The author considers the most important element to be what he terms "*globules pyoïdes*," and which he regards as an imperfectly formed variety of the true pus-globule, but differing from it in their chemical and physical characters; "they are spherical and are composed of two elements; one of which is a somewhat transparent and solid substance, whilst the other consists of molecular granules, from four to ten and upwards in number, irregularly distributed in the interior, which wants, however the usual characteristic of a nucleus." In examining purulent matter, we have certainly distinguished many globules, in which the interior was filled by numerous granules, the nucleus being apparently absent, and so far we are able to confirm the account given in the text.

The crystals consist of cholesterine and also of other kinds of crystals, usually having the form of elongated prisms, with from three to six lateral faces, and truncated or pointed at the extremities. M. Lebert has also occasionally met with small infusory animalcules, belonging to the genus vibrio of Ehrenberg, in purulent matter derived from various sources, as abscess, carcinomatous ulcer, bronchial expectoration, purulent urine, &c. As the author does not state the exact circumstances under which these minute animals were observed, it is a question whether they were not owing to changes taking place after the pus was extracted, rather than forming an integral part of that fluid.

Before dismissing this subject, it may be desirable to call attention to the relations which exist between pus and mucus, a point which has been principally investigated in connexion with the character of the sputa in various forms of pulmonary disease. Resting on repeated examinations, we hold with those observers, who contend that the distinguishing marks of the pus-globule are in all cases sufficient to indicate that fluid; but, with respect to the microscopic characters of mucus, the evidence is by no means so satisfactory. Up to the present time the existence of some kind of corpuscle in this latter secretion, under the name of the *mucous globule*, is generally admitted, whether this be a modification of the lymph-globule of the blood, of the pus-globule, or a production of the mucous membrane itself. It is thus described by one of the latest writers on microscopy, M. Donné: the mucous globules are small, spherical particles, granular; semi-transparent, slightly fringed in their color, and $\frac{1}{100}$ of a millimetre in diameter; they appear to be vesicles containing each a nucleus of three or four grains or globulins. In opposition, however, to all these views, and especially to those of the writer just quoted, M. Donné, who has entered minutely into the character of the various mucous secretions, the author contends "that proper mucous globules do not exist, and that normal mucus, free from all accidental mixture, does not contain any of those mucous globules which have been described as very similar to those of pus." M. Lebert thus attempts to explain what he calls the prevailing mistake; in the case of healthy mucus, either young epithelial cells or the large nuclei of the tesselate epithelium have been mistaken for the so-called mucous globules; whilst, as regards morbid secretions, what have been described as globules of mucus, are in fact nothing else than globules of pus.—(*L. c.*, p. 68.) It may be well to point out, in reference to this latter position, that the natural secretion of the mucous membranes is readily converted into true pus, merely by an altered action of the part, without ulceration; a fact well stated by Dr. Hodgkin, who remarks, "one of the most remarkable changes which a morbid action produces in the secretion of a mucous membrane, is its acquiring, more or less completely, the characters of true pus; this change takes place independently of any abrasion of the surface of the membrane on which the altered secretion is poured out."

In connexion with the subject of Effusion of Blood in the Brain, M. Lebert states that, in a case where death had ensued eight days after the effusion, examining microscopically the clot situated in the optic thalami and corpora striata, he found the primitive nerve-tubes separated rather than destroyed, and in many places these could be recognised almost intact, a fact "which explains how the functions of the brain might sometimes recover a certain degree of integrity after the absorption of apoplectic extravasations."—(*L. c.*, p. 123.) We have for a long time felt the necessity of more careful examinations than have yet been made, of sanguineous effusions into the substance of the brain. It frequently happens, in such cases, that the hemiplegia is not perfect; sometimes the patient retains partial power over the fore-arm or leg; at other times, the little and ring-fingers are permanently paralyzed, the remaining fingers and the thumb being more or less obedient to the will. Now, in these cases, one of two things, supposing the hemispheres to be, as we believe they un-

questionably are, the seat of volition, must have happened; either the effused blood, disrupting all the fibres within its area, must have spared certain of the fibres around, belonging, for instance, to the median nerve; or, a portion of the cerebral tubes contained within the coagulum and going to that nerve, must still have retained their continuity. Our own opinion has been, that the former was the true explanation of the partial voluntary power remaining in these cases, because we have frequently seen a part of the fibres radiating through the corpus striatum and neighbouring parts, pushed, as it were, on one side of the clot, and so avoiding laceration; the facts related by M. Lebert indicate, however, another view of this interesting part of cerebral pathology, and also show the necessity for further researches.

Our limits will not permit us to follow the author in his investigation of the effects of inflammation in the several splanchnic organs; we must, however, make one exception in the case of the *morbus Brightii*, or, as it is here termed, "albuminous nephritis," an affection to which much attention has lately been directed in consequence of a very interesting paper communicated by Dr. George Johnson to the Medical and Chirurgical Society. In that paper, it was contended that the disease essentially depends on a morbid state of the secretory or epithelium cells lining the urinary tubules, consisting of an accumulation of the fatty matter, which, in the form of oil-globules, naturally exists in very small quantities in the above-named cells; thus, in fact, the affection is a fatty degeneration of the kidney, analogous to the fatty degeneration of the liver described by Mr. Bowman, and not an inflammatory disease. It is further affirmed by Dr. Johnson, that this accumulation of fat in the secretory cells necessarily leads to the engorgement of the tubules which they line, and that one or more convoluted tubes thus distended, and projecting on the surface of the gland, or on the surface of a section, constitutes one of the so-called "granulations of Bright." The frequent connexion of albuminous and bloody urine with this disease is attributed to the mechanical compression of the blood-vessels of the Malpighian corpuscles by the dilated tubuli, and not, which is the more common opinion, to the primary vascular turgescence of the organ.* This brief notice of the novel views of Dr. Johnson will enable our readers to appreciate the researches of M. Lebert, who has restricted his inquiries to three questions: firstly, in what state are the elements of the blood found in the urine; secondly, what is the molecular composition of the granular substance; thirdly, in what parts of the kidney are the granulations deposited?" In the commencement of the disease, when the urine has a brownish and slightly reddish tint, many red particles perfectly intact are observed, together with a certain quantity of the colouring matter of the blood, in very irregular fragments; in the more advanced stage, the pure albumen of the blood is detected. The author adds, "these facts prove that the albumen and colouring matter of the blood do not escape from the renal capillaries by simple exosmose, but, as in inflammation elsewhere, the albuminous nephritis offers, at the debut,

* We have extracted the above details from a report in the Lancet of Nov. 22, 1845.

and whilst the afflux of blood is most developed, a real rupture of a certain number of capillaries gorged with blood; and, consequently, a portion of the albumen and colouring matter, as well as the particles, escape from the circulating torrent." It does not, however, appear that the author has actually seen the rupture he describes, so that what is stated is rather an inference than an observed fact.

"As to the microscopic molecular composition of the renal granulations of Bright, I have found no other elements than very numerous molecular granules, having a diameter varying from $\frac{1}{1000}$ to $\frac{1}{500}$ of a line, and forming considerable aggregations or globules. It often happens, that a certain number of the above granules are grouped together, and at length are surrounded by a cellular envelope, by a process similar to the formation of the large yolk globules of the hen's egg. I have never been able, after the most cautious observations, to detect these globules in the interior of the capillaries, and I do not believe they are ever formed until their elements have escaped from the capillary vessels by an exosmotic process. Lastly, I have discovered in the globules fatty granules and vesicles, and sometimes in a rather large proportion.

"With respect to the seat of the granular and albuminous extravasations, I have found it to be most frequently in the uriniferous canals, which become, as it were, artificially injected by the effused matter; at other times, the deposit was in the interstitial renal substance, separating the different physiological elements of the kidney from each other."—(I., p. 146.)

The author quotes an observation of Valentin, published in his Repertorium for 1837, in which it is stated, the cortical canals were found to be filled with a greyish-yellow substance. It thus appears that M. Lebert's researches confirm the opinion of those who regard this disease as essentially inflammatory in its type; and, although he has, like Dr. Johnson, seen fatty vesicles within the tubuli uriniferi, he considers them to be merely a secondary product, resulting from the previous congestion of the renal capillaries.

The section on Phlebitis contains many details of interest, inasmuch as they tend to throw some additional light on the cause of those remarkable purulent effusions or metastatic abscesses of the lungs, of the joints, &c., which so frequently result from this obscure affection. The author states that the existing opinions upon this subject may be reduced to three categories:—1. The metastatic purulent collections are merely depôts produced by the pus-globules, which, too voluminous to traverse the finest capillaries, are arrested and become the focus of these abscesses. 2. The blood is the primitive cause both of the phlebitis and of the secondary purulent deposits. 3. The putrid detritus of the tissues detached and absorbed with the pus of the ulcerated or gangrenous parts, becomes the point of departure of the purulent affection. Not feeling satisfied with any of these explanations, M. Lebert has made several experiments on living animals, rabbits and dogs, by injecting pus into the crural artery. The most marked effects were observed in the qualities of the blood; the natural colour was altered to a brownish red tint; in some cases, coagulation was imperfect or absent; in all, the experiments related, nine in number, the red particles and the fibrine "appeared to lose their physiological qualities;" the former became altered in figure, were deprived more or less of their colouring principle, and were diminished in number or entirely disappeared; their place being supplied by very small mole-

cules; and by small elongated bodies: as regards the fibrine, it appeared to be decreased in quantity. It is important to notice that, although the microscope was carefully used with the express purpose of ascertaining if pus could be detected in the blood, the author only succeeded in recognising it in two instances; "once in a manner not to be doubted in the right auricle of one of the animals in which pus had been injected into the femoral artery; and a second time, though doubtfully, in the case of a man who had succumbed under brachial phlebitis."* Another effect of the mixture of pus with the blood in the living animal is the tendency to capillary hæmorrhage; thus, extravasation of blood was almost constantly found in the interlobular substance of the lungs; also in the liver, in the heart, pericardium, kidneys, in the walls of the bladder, &c. These experiments are by no means superfluous, for the cause of the constitutional and other symptoms supervening on phlebitis is not satisfactorily determined. We find, for example, Mr. Hodgson surmising that "it is not improbable that the constitutional irritation may be the effect produced on the nervous system by the pus which is secreted into the vessel being mixed with the circulating blood; whilst Mr. Travers, arguing against this view, says, "not to insist on the innocuous quality of pus, it should be observed that the most rapidly destructive inflammation is that which has the true adhesive progress, in which no pus is secreted." One of the latest writers on this subject adduces these opinions without deciding the question; for ourselves, we entirely adopt the results of the experimental researches we have just quoted.

M. Lebert seems to have ascertained that a real inflammatory process precedes the local deposit of pus, especially when this occurs in the joints.

"Metastatic abscesses and purulent collections met with in the serous cavities, have this in common, and we insist on the fact, that the parts secreting the pus are always found in a state of inflammation. This may not have been intense; it may, when the disease is prolonged, have disappeared, leaving only its product; but when the formation of these collections and infiltrations of pus is carefully examined, an inflammatory hyperæmia is always detected as a point of departure."

He subsequently adds that, in the parenchymatous organs, he has constantly found, in the vicinity of the principal collection, small deposits, which, being in a nascent condition, offered an interesting subject for analysis. The gradations observed in the progress of these abscesses may be thus briefly enumerated:—1. A local and circumscribed capillary injection, the vessels dilated and gorged with blood more or less coagulated, but without pus-globules. 2. In the centre of this vascularity a yellow point is seen, which is nothing else than a drop of pus, displaying under the microscope some well characterised pus-globules, in general without

* This failure in demonstrating microscopically the presence of pus in the blood, is not to be regarded as a proof that purulent matter is not poured into the torrent of the circulation from the inflamed inner surface of the vein. The author himself attributes the effects following phlebitis to such admixture, and several of the English writers who have so well investigated this subject, among whom we may mention Dr. J. Clark and Mr. Wilson, have found pus in the veins implicated.

nuclei, and floating in a serous fluid. 3. A further collection of pus, but still simply infiltrated, so that the tissue of the organ, although apparently destroyed, is still tolerably well preserved; thus, in the liver, the minute biliary canals with their cells, and in the kidney, the uriniferous canals, their epithelium, and the Malpighian corpuscles are recognisable; the vascularity still persists. 4. The purulent infiltration is transformed into a focus, of which the liquid centre, mixed with the debris of the organic tissue, is composed of a granular and fatty pus, there being but few perfect pus-globules. Lastly, by the progress and confluence of several small foci, an abscess, capable of containing a hen's egg or larger, is formed, but differing from an ordinary phlegmonous abscess, by having several lobular anfractuosities.—(P. 288—291.)

These are valuable facts, and although they do not explain the special cause of these remarkable deposits, they disprove the notion of any mechanical transference of pus from the affected vein to the abscess.

The treatment suggested for this fatal disease, which according to the author, is one of the most frequent causes of death in cases of wounds and operations occurring in hospitals, is the cauterization of the affected vein as advocated, and in some cases successfully applied, by M. Bonnet of Lyons. M. Lebert prefers the actual cautery on account of its immediate action, which is to cause an effusion of lymph, and the plugging up of the vessel, thus assisting the process by which Nature, in some rare cases, effects a spontaneous cure.

Many of our readers are aware that M. Louis appended, in the second edition of his admirable work on Phthisis, an account of the microscopic characters of tubercle, drawn up by M. Lebert. In the present work, this subject is very fully and ably investigated, and will well repay a careful perusal. The author commences with a proposition which will, in some quarters, be received with scepticism: "*it is*," he affirms, "*a general law in the molecular composition of morbid products, that everything which is really and materially different in pathology, shows this difference in the ultimate elements appreciable by sight, that is in the microscopic structure.*" We have here the expression of a conviction, which must have forced itself on all who have been closely engaged in minute observation; for, although it may be too much to affirm, that the existing knowledge is such as fully to realise our author's assertion, yet the whole tendency of microscopy, normal and abnormal, is to demonstrate as a fundamental law of organization, that wherever there is any, the least, modification of vital action, it is accompanied by a corresponding modification of structure. If it be objected that this principle would require an almost infinite variety of form and construction, we answer by affirming that such variety does in reality exist in animal organisms. He who has seen the multitudinous diversities displayed in the various forms of dentine, in the capillaries of different though closely allied organs, in the several glandular formations. will be prepared to admit not only the possibility, but the great probability of the position above quoted. That in the present day the distinctive microscopic characters of carcinoma, colloid, fungus, are not sufficiently established to serve in all instances as sufficient indications of the disease, may be freely granted; but these and similar imperfections relate to details, not to principles, and the experience of the past fully justifies

a confidence in the future, to clear away those conflicting accounts which have shaken the faith of many in the powers of the microscope, as applicable to morbid anatomy, but, we may add, of none who are practically acquainted with the use of the instrument.

The constant elements of tubercle, according to M. Lebert, are, 1, a great quantity of molecular granules, perfectly round, having a diameter varying from $\frac{1}{1600}$ to $\frac{1}{800}$ of a line: 2, a hyaline substance rather consistent, and uniting together the preceding: 3, globules proper to tubercle. The latter constitute the peculiar characteristic of this morbid product, and are thus described: their form is rarely altogether round, although it is probable that, on their first deposition, they approach the spherical figure, and that they assume a less regular, and often angular contour, as we see in so many other analagous instances, from their close juxtaposition; they are of a clear yellow colour, and contain granules, but no distinct nucleus. These tuberculous globules vary considerably in their size, (from $\frac{1}{400}$ to $\frac{1}{250}$ of a line,) but without any definite relation to the age of the subject, or to the organs in which they exist. After contrasting the globules in question with those of pus, cancer, and encephaloid, M. Lebert thus expresses himself: "tubercle then contains, in its crude state, an element which is peculiar to it, and which distinguishes it from all other morbid productions." P. 360.

The remarks of the author on pulmonary tubercle are judicious, and offer many points of interest to the pathologist. He coincides with Laennec and Louis, in opposition to Bayle and other writers, in thinking that the grey granulations of the lungs are not a particular form of phthisis, but that they constitute only one of the forms by which tuberculization begins not only in the lungs, but also in many other organs; and he subsequently adds, that microscopic observation shows that the grey semitransparent tubercle contains, in fact, all the elements of the yellow tubercles. An important condition of the pulmonic capillaries in this affection is pointed out, and its signification well distinguished.

"They (the grey granulations) are ordinarily surrounded by numerous vascular networks, but it is necessary to avoid taking this vascular injection for a sign of inflammation; it is rather the result of a mechanical hyperæmia, arising from this circumstance, that the grey granulations, usually very numerous, have either caused a great number of the capillary vessels to disappear, or they have displaced those which, prior to their formation, occupied the places in which the tubercular deposits were made. The blood, in consequence, has a smaller containing space for the same quantity, and in this manner the vessels become distended and gorged with that fluid; hence it is certain that this hyperæmia may easily become inflammatory, although this is far from constantly happening." *L. c.*, p. 383.

In a valuable paper on the minute structure of the lungs, published by Mr. Rainey in the last volume of the Medico-Chirurgical Transactions, the cause of the condition of the vessels just noticed is more definitely explained. In pulmonary phthisis the tubercular matter is unquestionably deposited within the air-cells, and, by the gradual increase of the deposit, the vascular plexuses lying between the air-cells are first of all compressed and then absorbed, and thus, as Mr. Rainey states, two pathological states are induced: "first, a portion of lung is rendered impermeable to the

blood; secondly, the blood is thrown upon the surrounding unaffected parts." A careful examination of well-injected tuberculated lungs confirms this statement, and conveys to the mind of the observer a clear conception of the cause both of the hæmoptysis and of the attacks of inflammation so frequently supervening in phthisis.

In describing the character of the expectoration in tubercular disease, M. Lebert endeavours to prove that the microscopic examination of the sputa does not aid in forming a diagnosis, especially in incipient cases. The author has, however, accurately depicted in the illustrative plates of pulmonary tubercle (Pl. 8, fig. 2, B., and Pl. 9, fig. 1,) an appearance consisting of what he terms "fibres pulmonaires," which, we believe, may be received, whenever it can be detected, as a distinctive character of tubercular expectoration. The fibres in question were first accurately described by Mr. Rainey in the paper above-mentioned, as forming the walls of the air-cells where the mucous membrane is absent, and especially as surrounding their apertures in the form of a well-defined border.

The second volume of M. Lebert's work is devoted principally to his researches connected with tumours; it also contains four special memoirs; one on the formation of callus, a second on the vegetable productions met with in tinea, a third on hydatids of the liver, and a fourth on the cellular theory, and on the formation of the elementary parts of the body in health and disease.

With regard to the classification of tumours, the author says, they "may be referred to two categories, of which one comprises those which contain elements that exist normally in the organism; whilst the other includes those composed of elements of a formation altogether new;" among the former, or homœomorphous, are epithelial tumours, encysted, fibrous, erectile, steatomatous, osseous, &c.; the latter, or heteromorphous, includes but one class, namely, cancer.

The application of the microscope as one of the means for arriving at a natural classification of tumours is of modern date; but it promises to become a most important adjunct in this inquiry. Already some interesting results have been obtained, especially in relation to diseased growths of the skin, in confirmation of which, it will suffice to point to the observations made in this country by Mr. Erasmus Wilson, and to those contained in the work before us. Among the valuable observations of M. Lebert, on "Epithelial and Epidermal Tumours," we can only notice those referring to certain morbid growths which are usually regarded as of a malignant and carcinomatous character, but which our author contends are simply epidermoid productions. A tumour of the size of a French-bean firmly adhering to the os tincæ, was excised by M. Lisfranc; on being examined, it was found to be formed of several membranous layers, the outer of which were composed of distinct epithelial cells, (well represented in Pl. X., fig. 1,) whilst the interior consisted of fibres and cellules having the character of epithelial nuclei; vessels were prolonged into the tumour, but were doubtless separated by a limiting membrane, from the cells and nuclei: "it appears, then, that this tumour was primitively due to an epithelial development, and that the vessels subsequently had produced a fibrous structure." Several specimens of staphy-

loma were in like manner ascertained to depend on hypertrophy of the corneal epithelium.

The author also contends that many tumors of the lower lip reputed cancerous, are in reality pure epidermic tumors; they are thus described: "the tumors of this kind may acquire a considerable volume, and become tolerably vascular; they are also susceptible of inflaming, ulcerating, and suppurating. To the naked eye, they are found to be covered, first of all, by a layer more or less thick; when this is removed, a yellowish liquid, composed of globules of pus and of epidermis, and even occasionally of sebaceous matters, is perceived; these tumors are in general yellow, or reddish yellow, of an elastic consistence, and composed of papilliform lobules sufficiently elongated and united into groups, presenting a cauliflower aspect. The microscope only shows in these cases the elements of the epidermis and some vessels, and in the crust a mixture of pus and epidermis: the most careful inspection discovers nothing of the elements of cancer, but hypertrophied papillæ are found making a projection into a superficial ulceration and resting on an indurated base, the result of a chronic inflammation." This explanation proving that there is nothing malignant in these tumors, is supposed to account for the operation of excising the lip more frequently succeeding, than in carcinoma of other organs. (*Tome* II., p. 9.)

A similar explanation is suggested in what is called the chimney-sweeper's cancer, originally described by Pott. "I cannot avoid comparing this affection," says M. Lebert, "with the strictly analogous one which we have described as papillary hypertrophy of the lip, and which we have also met with on the skin of the breast and on that of the pubis; and it is very possible that the chimney-sweeper's cancer is nothing else than a papillary hypertrophy of the skin of the scrotum, having a tendency to ulceration, which, when it is neglected, may extend in surface and in depth, exhausting the powers of the patient and being accompanied by severe suffering." In confirmation of this view, the success of the operation, when performed sufficiently early, is quoted, and likewise the fact that the microscopic examination of one of these affections exhibited epidermic elements.—(*L. c.*, p. 327.)

These remarks are full of interest, and support the opinion, that true scirrhus cannot be induced by mechanical or chemical irritation; in fact, the mode of origin of cancer scroti and of many cases of labial cancer, cannot be reconciled with the pathology of genuine carcinoma.

We regret that our limits will not allow us to notice the researches of the author on the other forms of benign tumours; we therefore pass on to the heteromorphous or malignant growths, comprising the several forms of cancer. These are distinguished by "having for the essential distinctive elements the carcinomatous juice and globules, which differ from all the other forms of globules met with either in the normal state or in other morbid products. The other elements which are also met with in cancer, such as fibres, fusiform bodies, fat, colouring matter, vessels, &c., only constitute accidental elements, and consequently do not present any specific character."—(*L. c.*, p. 241.) In a subsequent page, this statement is more strongly urged:—"there are authors of great merit who assert that cancer does not offer peculiar microscopic elements; we have arrived

at a totally different result, and believe we can affirm, that the cancerous globule has tranchant characters which distinguish it from every other kind of morbid products. * * * * * We conceive that these globules ought to be reckoned among those which display the most striking differences from every other kind of cells." The cancerous globule is thus described: it is formed of a membranous envelope or cell, and of a nucleus which encloses a nucleolus; the size is variable, but the mean diameter equals $\frac{1}{100}$ of a line, ranging from about $\frac{1}{130}$ to $\frac{1}{66}$ of a line and upwards. Its form is for the most part round in encephaloid and ovoid, or a little elongated in schirrus; often, however, the globule is far from being regular, and may even present the most varied forms; it is in general more flattened than its nucleus. It is not rare to meet with large concentric cells having thick walls and enclosing several globules disposed in a concentric manner.

Next to the cancerous globules, the element met with in the largest proportion is the fibrous tissue, which may even be the predominant part: the fibres have sufficiently marked contours, are very minute, scarcely exceeding the $\frac{1}{800}$ of a line, and are in general less tortuous than ordinary cellular fibres; in some organs, in the mamma especially, many elastic fibres are seen. The author regards the above fibres, not as a new formation, but as a simple hypertrophy of the cellular tissue of the organ in which the cancer is deposited.

All accurate observers have found crystalline matters in carcinomatous growths, and these, according to M. Lebert, consist of diverse substances, especially of cholesterine; he has also often met with elongated prismatic needles in cancers of the œsophagus, mamma, cervix uteri, and in an encephaloid of the mesentery. In like manner, Müller has detected crystals in considerable number, in some forms of encephaloid and colloid; it is, however, to be remarked that crystalline matter is often found in other tumours and in various excreta.

It is not necessary to follow the author in his account of the other accidental substances recognised in malignant tumours, nor can we notice the very detailed investigations which he has given of the individual forms of cancer. The memoir on the formation of callus contains some details of interest, particularly relating to the respective shares of the periosteum and medullary membrane in the work of reparation (the former being the most active,) the microscopic texture of the cartilaginous nidus, the appearance of the Haversian canals, &c.

In the memoir of Tinea is a summary of the various observations that have been made on the development in this disease of some of the simplest forms of cryptogamic plants. Schönlein, guided by the fact ascertained by Audoin, that the silk worm is infested with a vegetable parasite which is contagious, discovered the intimate nature of the affection, and subsequently the subject has been prosecuted, especially in Germany. There is nothing in the whole range of organization more curious, or more difficult of explanation, than parasitic formations, animal and vegetable. Many of the former more particularly have such habitats, that nothing is known respecting the mode of their development: for example, in addition to the familiar instance of the acephalo-cysts, there are the filariæ, met with in the sub-cutaneous areolar tissue (the Guinea-worm) in the bronchial glands,

and even in the blood of dogs; the trichina in the substance of muscle; the strongylus in the kidney; the cysticercus in the aqueous humour and beneath the sclerotica of the eye. It is obviously more easy to conceive of the production of those entozoa, which inhabit the cavities of the body having external communications, as the acarus scabei and the entozoa of the healthy sebaceous follicles noticed by Simon of Berlin and since by Mr. Wilson, the various forms of intestinal worms, the spiroptera hominis in the bladder, and even the distoma hepaticum of the gall-bladder; and, in the same way, vegetable parasites may be accounted for, inasmuch as they are, we believe, exclusively found either on the exterior of the body, or in the passages leading from it. A late writer, Sobernheim, has thus enumerated the principal localities of the parasitical cryptogamia in man: "Quevenne and Hannover have found the yeast plant in diabetic urine when it begins to ferment; Hannover, Langenbeck, Bennett, Rayer and Klencke have found a filiform fungus on several mucous membranes. Hannover has seen a species of Leoptomitus Agardh, on the membrane of the mouth and of the tongue in two patients attacked with typhus, and also in the aphthæ of new-born infants, on the mucous membrane of the œsophagus and of the bladder. Bennett has met with a fungus allied to the Penicillum Glaucum in the expectoration of a phthisical patient, and Rayer found vegetations on the pleura and in the intestines of a man attacked with pneumo-thorax."

In porrigo favosa M. Lebert found "the surface of the favus composed of a membranous envelope of a yellow colour, in which the microscope revealed a homogeneous and finely punctated substance. The interior, of a pale white, was porous and formed of clots entirely composed of sporules and of simple or ramified threads. * * * * They occupy the larger part of the interior of these receptacles, have a round or oval form, with well-defined borders and a homogeneous interior. The youngest have a diameter of $\frac{1}{400}$ of a line, whilst those more developed with the same width have a length varying from $\frac{1}{250}$ to $\frac{1}{160}$ of a line. A movement of rotation was observed in these sporules, as they have been indeed in those of Algæ.—(*L. c.*, p. 479.) The author after noticing the other form of Porrigo, observes "the vegetable nature of tinea offers a ready explanation of its contagious nature, it is owing to the germination of the sporules in the dermoid tissue of the hair."

We must here conclude our notice of M. Lebert's excellent treatise, which, containing a clear account of the microscopic structure of morbid formations, and being illustrated by a series of accurate and well-executed plates, offers, to all who are interested in the subject, a comprehensive exposition of this new branch of pathology.

AN INQUIRY INTO THE PHYSIOLOGICAL AND MEDICINAL PROPERTIES OF THE ACONITUM NAPELLUS; TO WHICH ARE ADDED OBSERVATIONS ON SEVERAL OTHER SPECIES OF ACONITUM. By *Alexander Fleming*, M.D., President of the Royal Medical Society of Edinburgh. Octavo, pp. 160. Churchill. London, 1845.

WE hail with much pleasure and satisfaction all works having for their object the elucidation of the peculiar and distinctive effects of the very different remedial agents composing the important group commonly denominated Narcotics. For there is not, we apprehend, any other physiological class of medicines which presents to the physician so many points of interest as this one, whether studied in reference to physiology, toxicology, or practical medicine.

It is well known that these agents affect, though in an unequal and different manner, the various functions of the cerebral and spinal systems; and we know no more interesting and legitimate topic of physiological research, than the investigation into the precise seat of the operation of these agents, with the view of determining the particular functions of the several portions of the nervous system.

To the toxicologist the study of the operation of narcotics presents more immediate and practical advantages. It enables him to distinguish the different kinds of narcotic poisoning, to administer the antidote proper for each case, and frequently to detect crime.

Nor is the utility of a precise knowledge of the effects of narcotics less immediate and obvious to the practical physician. A more complete insight into the nature of the action would enable him to use them with more confidence and success; and to select the particular agent adapted for each case. We are afraid that, at the present time, a large number of practitioners regard the different narcotics rather as agents possessing different degrees of activity, than as substances differing specifically from each other in the nature of their operation. To such, Dr. Fleming's work is calculated to be of great use.

Dr. Fleming's work is divided into six sections, to which he has added an Appendix. We propose to examine successively the subjects of which he treats in each section.

Section First.—In this section the author notices the *History*, *Botany*, and *Physical Characters* of *Aconitum Napellus*.

Decandolle, in his *Prodromus*, has admitted 107 kinds of *Aconitum*. These he has arranged in 22 species. But a more recent writer, Mr. G. Don, in his *Gardener's Dictionary*, has described above 160 sorts, which he has arranged in 76 species. So that very considerable uncertainty exists as to the actual number of distinct species known at the present time.

The common Aconite of the gardens of this country is *Aconitum Napellus*. Of this species Decandolle admits 29, Mr. G. Don only about 11,

varieties. So that a similar uncertainty exists with respect to the limits and varieties of this species, as we have above stated to exist with regard to the genus.

Dr. Fleming follows Decandolle, and does not even allude to the differences and uncertainties with respect to the limits of the genus and species which we have here noticed. He agrees with Dr. Pereira in recommending the Aconitum Napellus as the officinal species; and, in the sixth section of his work, gives what he considers "conclusive reasons" for this preference.

Dr. Fleming does not appear to have made any experiments to determine the comparative activity of the different varieties of Aconitum Napellus cultivated in gardens in this country; at least none are mentioned in the present work. We much regret this omission.

He has made several experiments to determine the comparative activity of the different parts of the plant; and concludes that the *root* is the most eligible part for medicinal use, both on account of its greater activity, and also from the ease with which it may be obtained in large quantity. In this respect he agrees with Dr. Turnbull. The other parts of the plant are inferior in power. The *seeds* rank second, the *leaves* third, the *flowers* fourth, and the *fruit* and *stem* last in the order of medicinal activity.

The *root* is formed of two parts—a tapering root-stock, and one or more pyriform tubers attached by narrow necks to its upper part. The tuber of this year becomes the root-stock of the next, in the autumn of which it rots and dies; so that the root is biennial. The best time for gathering it is soon after the period of flowering, when the tuber possesses more activity than at any other time. It follows from Dr. Fleming's observations, that the tuber, and not the rootlets, should be selected for medicinal use. The author does not, however, directly state so; but we infer this from his remarks. We believe that the dried root sold in the London herb-shops is the second year's growth; and that the root-stalk constitutes its principal part. We know that it yields a very potent tincture.

Second Section.—In this section the author describes the ***Physiological Action*** of ***Aconitum Napellus*** on ***Animals*** [and ***Vegetables.***]

In the Appendix, placed at the end of the work, the author details the individual experiments which he has made; and we there learn that the animals experimented on were the dog, rabbit, kitten, pigeon, earthworm, and infusoria.

The general effects on the "lower" animals, were, according to Dr. Fleming, as follows:—

"Aconite, when introduced into the system of one of the lower animals, produces, in the first instance, weakness of the limbs and staggering. The breathing then becomes either slightly accelerated, or slow and labouring. The paralysis increasing, the animal is at last unable longer to support itself, and lies down upon its side, with the extremities stretched out in a relaxed state. The general sensibility of the surface is impaired, and, towards the fatal termination, is altogether lost. Blindness, to a greater or less extent, soon supervenes: the breathing becomes gradually slower and more imperfect; and after a few spasmodic twitches, death by *Asphyxia* ensues.

"On examination of the body immediately after death, the heart is found beating with considerable strength, nor does its action cease for some time. The peristaltic motion of the intestines also continues. The irritability of the

voluntary muscles is impaired, as is evinced by their being less easily excited to contraction by mechanical irritation, than is usually the case, although they still respond readily to galvanism. General venous congestion exists; the right side of the heart is distended; there is engorgement of the venæ cavæ, of their tributary veins, and frequently of the brain; venous blood may usually be detected in the left side of the heart and in the aorta. The blood coagulates, and the muscles become rigid as usual." P. 11.

If, by the phrase "lower animals," the author means to include the dog, we deny the completeness of his history of the symptoms; which would as well apply to other narcotic poisons as to Aconite. We found our objection to his description, as well on Dr. Fleming's experiments as on our own personal observation of the effects of this poison on animals.

He omits to mention an almost universal symptom in dogs, viz.: vomiting. In the *Appendix*, the author details four experiments on dogs, illustrative of the action of the poison when introduced into the stomach: and in every one of these vomiting took place. Hence, therefore, according to his own observations, the author ought to have mentioned vomiting among the general symptoms of poisoning by Aconite.

Most of his experiments were made on the rabbit, an animal which, like the horse, cannot vomit; and, therefore, the absence of this symptom in this animal is readily accounted for.

That the vomiting, which Aconite gives rise to in the dog, does not depend on the local action of the poison on the stomach, we have ourselves proved; for this symptom occurs when the poison is introduced into the cellular tissue of the back, or leg, other parts, provided that the death is not instantaneous, as when the poison is thrown into the veins

The omission of vomiting, from the general catalogue of the effects produced by Aconite on animals, is the more to be regretted, because it is a symptom of almost universal occurrence in poisoning by this substance in the human subject; and the value of toxicological experiments on the lower animals is principally derived from the light they are calculated to throw on the effects of poisons on man.

Another objection, which we have to make to the author's description of the effects of Aconite on animals, has reference to the order in which muscular paralysis and impaired sensibility occur. Dr. Fleming states that the muscular paralysis is one of the most characteristic symptoms of the action of the poison; and afterwards, in speaking of the effect of the poison on the common sensibility, he observes that, "it is sometimes difficult to judge of the impaired sensibility, as from the paralysis the animal has little or no power to express sensation." We admit the accuracy of this description, as applied to the rabbit (on which animal most of Dr. Fleming's experiments were made,) but we deny its general application to the dog, on which animal, in most cases, the impaired sensibility may usually be recognised, prior to the occurrence of paralysis; and this is a fact of the more importance, because the same is observed in man.

In proof of our position we quote the following experiment from Dr. Pereira's *Materia Medica*:—

"March 31, 1837, London Hospital. Present, Mr. Adams and several medical students. A small portion of alcoholic extract of Aconite was introduced into the peritoneal sac of a strong dog, who had been kept fasting for some hours.

In a few minutes he was evidently affected. He was less capable of supporting himself, and leaned against a wall. In ten minutes was insensible to the pain caused by the introduction of pins into his legs, paws, body, tail, nose, &c. His sight, however, was unaffected; at least he winked as usual when attempts to strike him were feigned. Was not paralytic; for he walked, though not firmly. He recognised several individuals, and wagged his tail when spoken to. He made violent attempts to vomit. He then laid down, became apparently weaker, and died without a single convulsion. At one period, the action of the heart was slower than usual, and the first and second sounds of the heart were unusually clear and distinct. Subsequently, the circulation was quickened. Respiration was not disordered; nor were the bowels affected."

The statements of Dr. Fleming with respect to the action of Aconite on the muscular system and common sensibility of the lower animals, if not absolutely incorrect, are certainly calculated to lead persons unacquainted with the subject into error. Thus he says, that "one of the most characteristic symptoms of the action of the poison is muscular paralysis;" while, in speaking of the common sensibility, he merely observes that this is always more or less impaired. Now, by the word *characteristic* we understand that which marks the peculiar distinctive qualities of a thing, and in this sense muscular paralysis is not the characteristic symptom of poisoning by Aconite, since it is equally the effect of cohia and some other poisons. According to our notions, the peculiar diminution of sensibility is the characteristic symptom of poisoning by Aconite, for at present we know no other poison which produces this effect. We admit that the muscular paralysis is the general or the almost universal effect, but deny that it is the characteristic one.

At page 11, Dr. Fleming observes, that—

"In general, the *pupil* is more or less *contracted*, dilating to its natural size immediately on the cessation of the respiration. This symptom seems attributable to the same pathological cause [*congestion of the brain*] as the convulsions, and for the same reasons. It was present in all the cases in which convulsions occurred. In the two experiments, on the other hand, in which the Muriate of Aconitina was injected into the veins, and where, from the rapidity of the fatal result, very slight venous congestion could have existed, the pupils dilated, and continued to do so up to the moment of death: apparently shewing, that *dilatation* is the specific or direct effect of Aconite on the pupil."

We confess we are at a loss to understand Dr. Fleming's conclusion, "that *dilatation* is the specific or direct effect of Aconite on the pupil," when he admits that, "in general, the pupil is more or less *contracted*" after the introduction of Aconite into the system.

His lame attempt to explain away the contraction of the pupil by ascribing it to congestion of the brain, totally fails in accounting for the contraction of the pupil produced by painting the conjunctiva with a minute portion of the unguentum aconitinæ. Moreover, what reliance can be placed on the observations made in the experiments 20 and 21, in the first of which the dog died in eight or nine seconds, in the latter, in twenty-three seconds? He states that, "immediately on the cessation of the respiration [that is, as we should say, on the death of the animal,] the pupil dilates to its natural size:" now, in the 20th experiment, the animal died *within* eight or nine seconds, [the author guesses at the period, for the time-keeper neglected his duty in this experiment,] and, in the 21st experi-

ment, the dilatation did not occur until the expiration of fifteen seconds, and in eight seconds more, no sign of animal life was discoverable.

"The rapidity and intensity of the remote effects of Aconite, are in direct proportion to the absorbing powers of the part to which it is applied, producing no effect when placed in contact with the skin, and acting with less energy when taken into the stomach than when introduced into a serous cavity, or into the cellular tissue. It acts with the greatest energy and rapidity, when introduced directly into the circulation." P. 17.

The author is, we think, quite accurate in his remark, that "there is no important difference in character between the action of Monkshood and that of its alkaloid, Aconitina;" but he is somewhat premature in his inference that the latter is, therefore, the true active principle of the plant" How does he explain the observations of Geiger, "that fresh Aconite yields, by distillation, an acrid liquor having an unpleasant odour and an irritant effect on the eyes?" For all that Dr. Fleming has advanced, Aconite may have two active principles of unequal volatility, but possessed of similar powers, just as cinchona bark has two alkaloids.

Section Third.—In this section the author discusses the *Physiological Action of the Aconitum Napellus on Man.*

In describing the topical action of Monkshood, he observes that this plant, when applied externally, acts as a *direct sedative to the nerves of sensation.* This is quite true, as far as it goes; but it scarcely goes far enough; for, besides being sedative, Aconite is alterative also, since the topical effects are not those which would arise solely from sedation. The heat, the peculiar tingling, the sense of swelling and distension, fully prove that sensation or feeling is altered in quality as well as lessened in intensity.

The author makes a very curious and interesting observation, which is new to us. After stating that *contraction of the pupil* speedily takes place and continues for several hours in consequence of painting the conjunctiva with the ointment of Aconitina, and referring to Dr. Pereira's experiments in some amaurotic cases, the author observes:—

"When, on the other hand, the ointment of the alkaloid, or the tincture of the root is applied to the temple or forehead, the pupil occasionally becomes *dilated.* I have only seen this latter occurrence in two cases, in both of which it was accompanied by partial blindness of the same eye. These phenomena are either effected by reflex action through the fifth and third nerves, or perhaps by imbibition; but why such entirely opposite effects should ensue in the two cases, it is difficult to understand.

"I may mention that I have several times anointed the eyelids with the alcoholic extract, in the same way as Belladonna is usually applied for the purpose of producing dilatation of the pupil, but without the slightest effect; a circumstance perhaps accounted for by the fact that the action of Aconite on the skin is only developed after considerable friction has been employed." P. 22.

The second division of this section is headed "*Physiological Action on Man in small or Medicinal Doses;*" but this is a misnomer, since it includes the effects of poisonous and fatal doses. Surely the author would not denominate a quantity of Monkshood sufficient to destroy life, as a "*medicinal*" dose?

In taking a general view of the ordinary effects of Aconite, the author considers them under four degrees of operation.

"*First Degree of Operation.*—In the course of twenty minutes or half an hour, after the exhibition of five minims of the tincture, a feeling of warmth in the stomach is usually experienced, which is occasionally accompanied by slight nausea and oppression of the breathing. After the lapse of thirty or forty minutes, this sense of warmth is diffused throughout the body, and, in a few minutes more, is attended by numbness, tingling, and a sense of distension of the lips and tongue. There is also tingling at the tips of the fingers, and a peculiar sensation is felt at the roots of the teeth. The feeling of warmth soon disappears, but the numbness and tingling of the lips and fingers continue for a period varying from one to three hours. Slight muscular weakness is generally experienced, with indisposition for exertion either mental or corporeal. In about half an hour more, the pulse is found to be diminished in strength: and in another hour, both the pulse and the respiration have become less frequent. Thus, a pulse which, in the normal state, beats seventy-two in the minute, will, by that time, have fallen to about sixty-four, and the respirations, supposing them to have been eighteen, to fifteen or sixteen.

"*Second Degree of Operation.*—Should a dose of ten minims be given at first or the first dose of five minims be succeeded in two hours by another of equal amount, these symptoms supervene more rapidly, and with greater severity. The tingling extends along the arms, and the sensibility of the surface is more or less impaired. In an hour and a half, the pulse will probably have fallen to about fifty-six beats in the minute, and become smaller and weaker than before, still maintaining, however, perfect regularity. The respirations will have diminished to about thirteen, presenting, at the same time, a slow labouring character. Great muscular debility is now experienced; and giddiness, with confusion of sight, comes on when the erect posture is assumed. The individual sinks into a lethargic condition, evinces great disinclination to be disturbed, although he rarely falls asleep, and complains much of chilliness, particularly in the extremities, which are cold to the touch. These phenomena continue in their full intensity from three to five hours, when they gradually disappear, a sensation of languor which lasts for several hours more alone remaining.

"This is the utmost extent to which I would recommend the physiological effects of Aconite to be carried, in order to obtain, with safety and success, its therapeutic action.

"*Third Degree of Operation*—On the administration of five minims more, two hours subsequent to the last dose, the sense of warmth and the numbness and tingling, again spread rapidly over the body. The sensibility of the surface is still farther diminished; lancinating pains in the joints are occasionally complained of; the headache, vertigo, and dimness of vision, are aggravated; the countenance grows pale and anxious; the muscular feebleness increases; the voice becomes weak, and the individual is frequently impressed with the dread of approaching dissolution. Occasionally, the pulse is reduced still further in strength and frequency, perhaps falling to 40, or even 36 beats per minute, but still maintaining its regularity. More frequently, however, it rises to 70 or 80, and becomes small, weak, and probably more or less irregular. The respiratory movements are also irregular, being either short and hurried, or deep and sighing. The surface is moist, and still farther reduced in temperature. Sickness may now come on; and, if formerly present, is much aggravated, and probably attended by vomiting. These symptoms do not entirely subside for one or two days

"*Fourth Degree of Operation*—If the administration be carried further, the symptoms assume a more alarming character. The countenance becomes pale and sunken: froth issues from the mouth, and the prostration increases. Two patients thus affected stated, that they felt as if dying from excessive loss of

blood. Consciousness usually remains; or there may be slight wandering delirium, as occurs also after profuse hæmorrhage. The voice is whispering, or is altogether lost. The pulse becomes still smaller, weaker, and more irregular; and the breathing more imperfect. The surface is colder than before, and is covered with a clammy sweat.*

"When the action of the drug is carried to a fatal extent, the individual becomes entirely blind, deaf, and speechless. He either retains his consciousness to the last, or is affected with slight wandering delirium; the pupils are dilated; general muscular tremors, or even slight convulsions, supervene; the pulse becomes imperceptible, both at the wrist and heart; the temperature of the surface sinks still lower than before; and at length, after a few hurried gasps, death by *syncope* takes place." P. 25.

This appears to us to be the most appropriate place for referring to the recent melancholy death of Dr. Male, which was caused, according to the opinion of his medical attendant, by the depressing influence on the nervous system of accumulated doses of tincture of Aconite, taken for the relief of pains in the back and loins, in consequence of the deceased having recently read a book (Dr. Fleming's) treating upon the advantages of Aconite in similar pains.

After having carefully perused the medical evidence given at the inquest, our opinion, grounded on an extensive experience with this drug, is, that Dr. Male's death was not attributable to the Aconite which he took. His symptoms were cold extremities, coldness and clamminess of the general surface of the skin, quick (130) and feeble pulse, with cramps and pains in his legs, and spasmodic pains in his stomach. He had been also suffering from diarrhœa for a few days. He gradually sank into a torpid state, from which, however, he could be easily roused, and then his intellects were clear. There was no paralysis, nor could there have been loss of speech, since it is stated that he took an affectionate leave of his friends; and reminded his medical attendant that for thirty-five years they had lived together in uninterrupted friendship.

It is obvious, therefore, that his symptoms were those of collapse and depression, which are of frequent occurrence from various causes, as cholera, the latter stages of diarrhœa, &c. That, generally speaking, they attend an overdose of Aconite cannot be denied; but, in Dr. Male's case, the symptoms characteristic of Aconite poisoning were absent, viz., the numbness, tingling and other phenomena of disordered sensibility, and difficulty of articulation. We have observed in our use of Aconite, that numb-

* "The effects detailed in the above paragraph are derived from four cases in which they occurred accidentally. In one of these the symptoms supervened prematurely, a circumstance to be attributed to the peculiar idiosyncrasy of the patient; in another they were induced by an error on the part of the attendant, (see Appendix, Part II., Case IV., report of December 21;) and in the remaining two were brought on by the patients themselves, who, in their anxiety to obtain complete relief from severe pain, took more of the medicine than was prescribed, (see Appendix, Part III., Case VIII.) The bad symptoms in all these cases were removed by appropriate remedies, and the patients recovered. The train of symptoms characterising the action of the drug when carried to a fatal extent, is derived from the published cases of poisoning, and is introduced to complete the view of its physiological effects, and to show forcibly its peculiar depressing agency on the heart."

ness and tingling are among the earliest and most marked symptoms of the operation of this drug.

In enumerating the effects of poisonous doses of Aconite, Dr. Fleming mentions *dilatation of the pupils* as one of the symptoms. But, in turning to his Appendix of cases of poisoning, it appears, that of nine cases which he records, the condition of the pupil is not noticed in four of them; while in two, contraction of the pupil occurred, and in three only is dilatation mentioned.

The author concludes that Aconite is a direct sedative poison, and that, according to the amount of the dose and consequent rapidity with which the fatal result ensues, there are three varieties in the symptoms and mode of death.

First.—It may prove fatal by a *powerfully sedative impression on the nervous system.*

Secondly.—It may prove fatal by *suspension of the respiratory function.*

Thirdly.—It may prove fatal by *syncope.*

The following is the mode of treating cases of poisoning by Aconite :—

"Provided vomiting to a sufficient extent has not already been excited as an effect of the poison itself, an emetic must at once be administered. If a sufficient time have elapsed for the poison to have reached the intestinal tube, a cathartic ought then to be given, and followed up, if necessary, by purgative injections.

"Tannic acid, from its power of forming insoluble compounds with the vegetable alkaloids, may be expected to be useful in neutralising the poison. The experiments on rabbits formerly noticed, shew that the gastric juice of these animals possesses a similar property. An infusion of the stomach of the rabbit, and probably of certain other herbivorous animals, might, therefore, be serviceable in poisoning by Aconite, although, from the length of time which it requires to act, this is more than doubtful.

"In order to combat the *remote effects* of the poison, which have been shewn to be powerfully sedative, a *stimulant* line of treatment must be rigidly enforced. Brandy and hot water, with ammonia, will be found most efficacious. Strong coffee has also been used with decided advantage. From my own observation, I am of opinion that great benefit is to be derived from friction with warm cloths and spirituous liniments, especially along the course of the spine and on the extremities. By thus stimulating the capillaries, the heart's action seems to be materially assisted. Sinapisms, or bottles of hot water, should also be applied to the præcordia and extremities.

"Should convulsions come on, the jugular vein ought to be opened, and a moderate quantity of blood withdrawn. By this means not only will the congestion of the brain be removed, but relief will be afforded to the heart, the right side of which is, in such cases, much engorged.

"Where there is much dyspnœa recourse may be had to artificial respiration, which will be of service not only in maintaining the function of the lungs, but also in contributing to keep up the action of the heart, and thus diminishing the tendency to syncope.

"When the action of the heart is becoming very feeble, the effect of slight galvanic shocks passed through it may be tried. In such cases, acupuncture of its walls has been recommended by Carraro." P. 53.

Section Fourth.—This section is devoted to the *therapeutic action of Aconitum Napellus.*

According to the author, the therapeutic properties, of which we may

beneficially take advantage, are those of an *anodyne, anti-neuralgic, calmative, anti-spasmodic* and *antiphlogistic* (sedative to the circulation.) Its *diuretic* and *diaphoretic* properties are, he thinks, too feeble and uncertain to be made available in practice; and a more extensive trial of its *deobstruent* properties is advisable.

He arranges the diseases for which Aconite is available in three divisions; the first including Neuralgia in its various forms, Cephalalgia, and the general pains of Fever; the second, Diseases of the Heart; and the third, Rheumatism, Erysipelas, Carcinoma, &c.

Under the head of *Neuralgia*, the author refers to the use of Aconite in Hemicrania, Tic Douloureux, Odontalgia, Otalgia, Thoracic and Intercostal Neuralgia, Spinal Irritation, Neuralgia of the Extremities, Sciatica, Angina Pectoris, and Gastralgia. With the exception of Angina Pectoris the author speaks from his own experience of the successful treatment of all these diseases by Aconite; and in the excepted case, refers to the experience of Dr. Copland. We do not wish to speak at all disparagingly of the therapeutic powers of this really valuable remedy, but we are satisfied that the author has greatly over-rated its therapeutical value, and practical men, when they fail to obtain the successful results which Dr. Fleming appears to have met with, will, we are sadly afraid, discard the use of it, and thereby actually lose the aid of a very useful therapeutic agent.

"Pereira, Copland, Watson, Skey, and others, are of opinion that the external application of the remedy is more likely to be attended with success in neuralgia than its internal administration; while Hufeland, Busse, and Tealier, give a decided preference to the latter. The table shows that both occasionally succeed in the worst cases. Our selection of the mode of treatment must be guided, in a great measure, by the nature and cause of the affection, as far as they can be ascertained. Should it appear to be caused by inflammation, either in the painful part or in the nerve farther up in its course, or should it be traceable to sympathetic irritation, the internal use of the remedy is more likely to be beneficial; if, on the other hand, it seem to arise from some local irritation applied to the nerve, or is merely functional, its topical application will probably be sufficient. In every case where the method of treatment adopted fails, the other should be had recourse to. It is hardly necessary to add that, in recommending Aconite in the treatment of neuralgic disorders, I would not have it used to the neglect of that due attention to the secretions and excretions which is indispensable for the successful application of any remedy." P. 60.

We quite agree with the author as to the value of the internal as well as external use of the remedy; but differ altogether from him as to the power of Aconite to cure neuralgia arising from inflammation. We have over and over again seen it completely fail in this case; and our own belief is, that Aconite is mostly successful in, and in fact is chiefly adapted for, functional neuralgia, that is, neuralgia unaccompanied with any obvious inflammation or other organic cause.

We think also that the author has greatly over-rated the efficacy of Aconite in Sciatica.

"Of twelve cases of *sciatica* in which I have used the Aconite, seven complete and two temporary cures were effected; two cases were partially relieved, and in one only was no benefit experienced. An analysis of these cases will be found in the table: and one of them is, for the sake of illustration, detailed in

the Appendix. As far as my own experience goes, I believe it will be found most useful in those cases of sciatica, which appear to owe their origin to a congested or inflammatory condition of the nerve." P. 64.

Our experience of Aconite in Sciatica is, that in all the severe forms of the disease it fails to give much, and in many cases, any relief. Slight cases frequently get well under its use; but we are very much inclined to ascribe the recovery to nature rather than to art.

In speaking of the use of Aconite in *diseases of the heart*, the author observes that—

"In all those cases where the indication is clearly to diminish the action of the heart, Aconite is a most valuable remedy. In *functional derangement* it will often be found—in conjunction with appropriate treatment in respect to diet, regimen, &c.—equal to obtaining a complete cure. In *certain* cases of organic disease, its use is followed by great alleviation of the painful symptoms. There is a large class of cases, however, where sedative remedies are decidedly contra-indicated, but where, notwithstanding, they are too often recklessly administered. I refer to those conditions of the heart where, from some obstruction, that organ is unable to transmit the necessary quantity of blood by the usual number of pulsations, and is forced to make up for such inadequacy, by more frequent and forcible contractions. Here it is obvious that the effect of further reduction of its power would be such increased frequency, as would then be necessary to enable it to perform its task. In illustration of this, I may state that I have seen the administration of Aconite in such circumstances followed by augmented velocity, and a proportionate decrease of the force of the pulse. Where, however, it is really desirable to reduce the action of the heart, as in simple hypertrophy, functional disorder, &c., Aconite seems to be superior to digitalis, the remedy usually resorted to in such cases, and for the following reasons: Aconite is, from the first, a pure sedative, while the depressing effect of digitalis is alleged to be preceded by a stimulant action; and many bear testimony to the injurious effects arising from this primary excitement. Aconite acts much more uniformly than digitalis, which not unfrequently fails to produce the desired effect; while its primary stimulant action is said occasionally to continue, without being followed by depression. The former operates more rapidly, in the course of an hour or two, and its action can be maintained with safety by repeated small doses. It is usually, on the other hand, a day or two, or even longer, before the latter exerts any sedative influence on the heart, while there is always a risk attending its long-continued use, from its tendency to accumulate in the system." P. 68.

We sincerely hope that the author's experience of the efficacy of Aconite in *acute rheumatism* may be confirmed by subsequent experience.

"The annexed table, which is composed of my own cases, and all those recorded by others which I have met with, shows that the average period required to effect a cure [of acute rheumatism] under this treatment, is 5·6 days; the usual duration of the disease, under the ordinary treatment, being about a fortnight or three weeks. In three instances, a complete cure was effected in two days; in one, in three days; and in six, in four days. The lowest averages of the duration of the treatment of acute rheumatism are, as far as I know, those furnished by Drs. Hope and Corrigan, the former of whom found few cases which remained under treatment for more than a week; while the latter, who treated the disease by opium, gives nine days as the average. The improvement following the administration of Aconite is often very speedy, some alleviation of the pains being occasionally experienced in the course of an hour after the first dose has been taken, while there are few cases in which decided relief, with abatement of the redness, tension, and tenderness, is not obtained in a few hours. A longer period seems to

be required to disperse the inflammation in the smaller joints than in the larger ones." P. 70.

We can bear testimony to the value of both the internal and external use of Aconite in *chronic rheumatism*.

"Aconite may be used both internally and externally in this disease. The internal administration seems to me preferable in what has been termed the active chronic rheumatism; that variety which is, perhaps, properly speaking, only a very mild form of the acute rheumatism, being attended with some heat and swelling of the part affected, and slight constitutional disturbance. On the other hand, I would recommend the external application of the tincture in what is called the passive chronic rheumatism, 'characterised rather by coldness and stiffness of the painful joints, with entire absence of constitutional fever.' In every case, however, should the mode of treatment adopted fail to afford relief, the other should be had recourse to; while it is frequently of service to combine the internal and external use of the remedy." P. 74.

Section Fifth.—In this section the author discusses the *administration* of Aconite, and recommends for medicinal use the *tincture* and the *alcoholic extract of the root*.

"TINCTURA ACONITI.

"Take of root of A. Napellus, carefully dried and finely powdered, sixteen ounces Troy; rectified spirit, sixteen fluid ounces; macerate for four days; then pack into percolator; add rectified spirit until twenty-four ounces of tincture are obtained.

"It is beautifully transparent, of the colour of sherry wine, and the taste is slightly bitter.

"EXTRACTUM ALCOHOLICUM ACONITI.

"This is prepared by distilling, at a low temperature, the spirit from the tincture, until the consistence of an extract has been obtained. The process should be completed in a vapour bath.

"Its colour is dark brown, or almost black; it has an agreeable smell, and bitter taste. The dose is one third of a grain, thrice daily, commencing with the one-sixth of a grain." P. 80.

We much regret that Dr. Fleming has thought it requisite to give a formula for a tincture of Aconite, yielding a preparation much stronger than that usually kept in the shops. Such an augmentation of strength is unnecessary and dangerous. Dr. Turnbull recommends one pound (=5760 grs. troy) of the root to two pounds of rectified spirit (=11520 grs. troy,) or one part root to two parts spirit by weight. Dr. Pereira estimates the spirit by measure, and directs one pound of root (=5760 grs. troy) to one and a half imperial pints (=10998 grs. troy,) or one part root to $1\frac{9}{10}$th parts of the spirit; and the tincture obtained by either of these formulæ, is strong enough for all medicinal purposes. Dr. Fleming, however, orders sixteen ounces (=7680 grs.) of the root to 24 fluid ounces (=8799 grs.) of rectified spirit, or one part root to $1 \cdot \frac{145}{1000}$ of rectified spirit by weight. The relative strengths of the three tinctures, therefore, are as follows:—

Dr. Turnbull's . . . . Root 500 to Spirit 1000.
Dr. Pereira's . . . . . Root 523 to Spirit 1000.
Dr. Fleming's . . . . Root 872 to Spirit 1000.

We shall let Dr. Fleming speak for himself as to the internal administration of the tincture.

"I prefer the tincture for internal administration, from its greater uniformity of action. The method of administering it varies according to the object in view.

"As an *anodyne, anti-neuralgic*, and *calmative*, five minims ought to be given at first, three times daily, to be increased daily to the extent of one minim each dose, until the physiological effects described under the second degree of operation have been produced.

"As an *antiphlogistic*, five minims ought to be given at first, and repeated in four hours: by which means the second degree of operation will, in all likelihood, have been induced. In order to sustain the sedative action thus developed, two and a-half minims are to be given every three or four hours, or less frequently, according to the effect produced.

"Where this mode of administration is adopted, it is *absolutely necessary* that the patient should be seen, and his pulse examined, before the exhibition of each dose. When this cannot be done, the remedy may be given in the manner pointed out for its use as an anodyne and calmative.

"The *best method* of administering the remedy in *diseases of the heart*, is to give it in smaller doses than those recommended for its use as an anodyne, but more frequently repeated, as three or four minims five times daily.

"Sickness may be avoided or checked by an effervescing draught, administered with, or immediately after, the dose." P. 82.

With regard to its external use, he justly observes, that the tincture is an excellent substitute for Aconitina.

"One or more drachms of it are to be rubbed over the affected part three times daily, the friction being continued at each time for a quarter of an hour, or indeed, until the topical effects of the drug are fully developed.

"It is hardly necessary to add, that when there is any abrasion of the skin, the external application of either of these preparations may be attended with danger." P. 83.

Section Sixth.—In this section the author treats of the *physiological action of the other species of Aconitum*, which he arranges, after Decandolle, in four sections. We subjoin his results.

SECTION I.—ANTHORA.

1. *Aconitum Anthora.*—The root has no power of exciting numbness or tingling. Half an ounce of the tincture was without any effect whatever. One ounce occasioned warmth and sweating.

SECTION II.—LYCOCTONUM.

2. *Aconitum Lycoctonum.*—Half an ounce of the tincture had no effect.

3. *Aconitum barbatum.*—Half an ounce of the tincture produced slight nausea.

4. *Aconitum ochroleucum.*—From ten to thirty minims of the tincture occasioned warmth and diaphoresis, but no numbness or tingling. Var. *puberulum.* Half an ounce [of the tincture] produced slight and transient warmth of the surface.

SECTION III.—CAMMARUM.

5. *Aconitum paniculatum.*—The plants of this species, on which the observations have been made, were raised from roots sent by Decandolle.

Half an ounce of the tincture was without effect. Dr. Christison also confirms the inactivity of this species.

6. *Aconitum variegatum* } inert.
7. *Aconitum Lasiostonum* }

SECTION IV.—NAPELLUS.

8. *Aconitum Napellus.*—This and all other species of this section are equally active both as regards their topical and medicinal action.

The tinctures of the roots of the above species were prepared in every case with a drachm of the root, [*fresh or dried ?*] to an ounce and half [*by measure or weight ?*] of spirit, [*rectified or proof ?*]

As the author directs the tincture of Aconitum Napellus to be prepared with rectified spirit, we presume that he used spirit of the same strength in making experiments on the other species. If not, his comparative observations are of little value.

Assuming, however, that he did, we cannot reconcile his statements of the effects of these tinctures with the known effects of alcohol; for Dr. Fleming found that half an ounce of several of these tinctures was without any effect whatever in females, and one ounce only occasioned warmth and sweating. Were his patients whiskey-drinkers ? The gin usually sold to the spirit shops in this metropolis is 22 per cent. *under proof*, and as retailed is in general still farther diluted. Yet Dr. Fleming's patients took a fluidounce of rectified spirit 56 or 58 per cent. *over proof*, without perceiving any effect beyond warmth and sweating !

Dr. Fleming's experience of the inactivity of several species of Aconitum are very interesting; but his statements must, when in opposition to the observations of previous writers, be received with considerable caution. It is well known, that Dr. Christison has recently found that the *Oenanthe crocata*, growing in the neighbourhood of Edinburgh, is quite inert, though the same species growing in the neighbourhood of London is a most virulent poison. May the same be the case with some species of Aconitum ?

The London College has admitted into its Pharmacopœia *Aconitum paniculatum* Decand. as the officinal species, under the belief, we presume, that this was the species employed by Störck, Decandolle having given the name *Storkianum* to a variety of this species, and declared it to be the plant described by Störck. Dr. Fleming does not state which of the seven varieties of *A. paniculatum*, admitted by Decandolle, was the one he tried. Making due allowance for Störck's exaggeration of the therapeutical value of Aconite, it cannot be doubted, we presume, that the species he employed possessed considerable activity; and if, therefore, *A. paniculatum* be inert, we conclude this was not the species employed by Störck. However, before we arrive at this conclusion, it is necessary to know, in the first place, which of the seven varieties of *A. paniculatum*, mentioned by Decandolle, was the plant used by Dr. Fleming; and, secondly, whether *A. paniculatum* is always as inert as Dr. Fleming found it to be when growing in the Edinburgh botanic garden.

Whatever be the result of the inquiry, we feel that Dr. Fleming has done good service to Materia Medica by directing attention to the matter.

In speaking of *Aconitum ferox* Dr. Fleming states that in India "an oil is said to be distilled from it." Is not this an error?

In an *Appendix* to his work, Dr. Fleming details his experiments illustrative of the Physiological action of the *Aconitum Napellus* on animals, and gives cases illustrative of the physiological, therapeutical, and toxicological action of the same plant on man. These, however, we think it unnecessary to notice farther.

In concluding our notice of Dr. Fleming's work, we have great pleasure in recording our opinion of its utility, and in recommending it to the perusal of our readers.

UEBER DIE CONTAGIOSITÄT EINGEWEIDEWURMER, NACH VERSUCHEN, &c.: von *Ph. Fr. Herm. Klencke*, Professor und Mitglied der Kaiserlichen Leopoldinisch-Carolinisch Akademie, &c., &c. 8vo. pp. 168. Jena, 1844.

On the Contagiousness of Entozoary Animalcules, ascertained by Experiments, &c. By *P. F. H. Klencke*, Professor and Associate of the Imperial Academy, &c.

IN the number of this Review for April, 1844, we gave a somewhat lengthened account of the researches of Dr. Klencke on a very curious and interesting subject of pathological enquiry, that of the production and propagation of Hydatidic and other entozoary animalcules in the bodies of man and of the higher Vertebrata. We there showed that these parasitic creatures are capable of being transmitted by inoculation, in the way of direct experiment, from the body of one animal to that of another; and we adduced several other arguments to prove that the blood is the medium by which all the various kinds of Entozoa—whether Hydatidic, Intestinal, or otherwise—are usually conveyed to, and deposited in, the substance of the viscera or organs where they may happen to be found.

At the period of our notice, we had not seen this work of Klencke: our information being at that time derived from the pages of the Gazette Médicale of Paris. Having now perused the original, it has occurred to us that it may be well to recal the reader's attention to the subject, and to fill up the gaps and imperfections of our previous article. It will be useful to make a few preliminary remarks.

In Dr. Holland's excellent Notes and Reflections, there is a most interesting Chapter, headed "On the Hypothesis of Insect Life as a Cause of Disease?" Many most ingenious arguments are there adduced to show that it is far from being improbable that certain diseases, more especially those of an epidemic and contagious nature, may be owing to the development and diffusion of minute animalcules in the atmosphere, capable, by application to the living body, of acting as a morbific virus—and thus constituting, to use the language of Klencke, a *contagium animatum*. This idea is far from being one of recent date; indeed, it was more frequently canvassed in the medical writings of last, than in those of the present, century. There are several memoirs on the subject in the Amœnitates

Academicæ of Linnæus: in one, which is entitled "Exanthemata Viva," small-pox, measles, the plague, dysentery, syphilis and hooping-cough, are all attributed to animalcular infection.* And when we consider the extreme fecundity of some of the Entozoa, and consequently the excessive minuteness of their ova, there is certainly nothing at all improbable in the supposition that these germs may become introduced into the blood, and circulate through the smallest capillaries to every part of the body. Ehrenberg has hazarded the conjecture that Scrofula, in its various forms, may be thus produced--"a supposition," as Dr. Holland remarks, "not wholly new, nor incompatible with the fact of its being an hereditary disorder."

Cancer, too, has been attributed by various authors to the existence of an hydatiform body, (which, by some at least, has been believed to possess an individual and independent state of existence,) developed in those parts of the body whose vitality has become enfeebled, and whose organization therefore has begun to be decomposed.

Of late years, our knowledge of the astonishing extent and prevalence of parasitic animalcules has been greatly amplified. While only eleven species of intestinal worms are recorded in the 12th Edition of the Systema Naturæ of Linnæus, nearly 1000 species are described by Rudolphi in his Entozoorum Synopsis; and others have since been discovered. Besides this circumstance, it has been already ascertained that upwards of forty genera of insects are liable to be infested with parasitic worms (filariæ:) even within the bodies of some entozoa themselves, monades have been demonstrated to exist. Then, again, the discovery of various

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* Dr. Holland has, in the article alluded to, brought together many most ingenious arguments with the view of showing that the origin and spreading of Pestilential Cholera were in all probability connected with the development, and dispersion through the atmosphere, of broods of invisible insects. As his work may not be in the hands of many of our readers, we are tempted to quote the following passage:—"In many respects, indeed, the erratic and ambiguous course of Cholera is well represented by the flight, settlement, and propagation of the insect swarms which inflict blight upon vegetable life. Their appearance at different and often distant periods, without obvious cause for such irregularity—their direction to certain plants only—their settlement upon these in clusters and detached localities—the frequent suddenness of their change of place and final disappearance—are all circumstances of curious analogy; as also the curiously abrupt limitation of some of these swarms, showing itself in definite lines of direction, along which their work of destruction is carried on. These lines, though to our observation seemingly arbitrary, are doubtless connected with the instincts of life under this form, and with the relation of such instincts to the surrounding media. The Cholera has been often defined in its course by similar lines of direction; sometimes stretching over considerable tracts of land or sea; more frequently obvious in particular localities; but in neither case receiving explanation from any physical conditions of the globe, from currents of air, or local circumstances of soil and climate. Nor will human communication, though certainly concerned in part in the transmission of the disorder, resolve these singularities; of which numerous examples might be cited, from the first appearance of Cholera in India, to its latest ravages in Europe. We have similar occurrences in the history of some other epidemics, but none so remarkable in degree."

sorts of animalcules in the blood of man and of the lower animals has opened a wide field for speculation. The *polystoma sanguicola* has been found in the expectorated blood of phthisical patients; numerous *filariæ* have been repeatedly seen in the blood of dogs; a species of *strongylus* has been observed in the blood-vessels of the horse and of the dolphin; the *anguillula intestinalis* and *filariæ* in those of the frog; and the *amœba* in the blood taken from the aorta of a trout.* M. Mandl has asserted that the tartar of the teeth consists of the skeletons or cases of microscopic animalcules, (Med. Chir. Rev., Jan., 1844;) and indeed Leuwenhoek had anticipated this curious announcement, as he had discovered that living *vibrios* may often be seen in the mucus of the mouth. M. Mandl suggests that the formation of the tartar may, therefore, be considered as a process altogether similar to the formation of some sandy soils, and even of certain solid slaty rocks, which have been shewn by Ehrenberg to consist entirely of the siliceous cases of animalcular insects. We need not allude to the animalcules that always exist in the seminal fluid, or to the *acarus* that is so generally present in the papules of Scabies. Our readers have no doubt heard, with a most reluctant astonishment, of late years, that almost every sebaceous follicle on the surface of the skin is the *habitat* of an animalcule; the *acarus* or *entozoon folliculorum* of Simon and Wilson. Animalcules have been found in purulent matter; in the mucus of the vagina, and of other passages leading outwardly; in the gastric and intestinal juices during the process of digestion, (Med. Chir. Rev., for April, 1844;) in the milk and other fluids of the body, &c.—The *trichinia spiralis* has been repeatedly discovered by many anatomists in muscular substance; the *cysticercus cellulosa* in the same texture, and also in the substance of the nerves and brain; a species of *filaria* in the lens and aqueous humour of the eye; and the *distoma hepaticum* is, it is well known, a very frequent occupant of the parenchymatous substance of the liver. We might here allude also, as being at least connected with the curious subject of *contagium vivum*, to the various instances where *fungi* and other microscipic vegetables have been discovered in the bodies of living animals. The muscardine in the silk-worm, the cryptogamic fungi that have been seen in the sputa of phthisical patients, the vegetable nature of the scales in certain forms of Porrigo and Tinea, the microscopic vegetables discovered by Andral and Gavarret in albuminous fluids (Med. Chir. Rev., for July, 1843,) are instances of this sort; although, certainly, it must be acknowledged that some of these alleged discoveries stand in need of confirmation. The well ascertained fact, however, of the development of minute fungi during the processes of Fermentation and Putrefaction sufficiently attests the constant and wide spread diffusion of germs of living matter everywhere:—all the best observers reject the doctrine of spontaneous generation. Keeping these few remarks in view, the reader will, perhaps, the better appreciate the observations and reasonings of the author of the Contagiousness of Entozoary Animalcules; and first of Hydatids.

In our former article, we have stated that Dr. Klencke recognises five

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* Vide the Medico-Chirurgical Review for July, 1843; and for January and April, 1844.

sorts of these entozoa. These are the Hydatis Spuria—the Acephalocystis —the Echinococcus—the Polycephalus Cœnurus—and the Cysticercus. It is unnecessary again to describe their peculiarities. Suffice it for our present purpose to say that, in our author's opinion, it is only the three last named species of these cellular or cystiform productions that are to be regarded as genuine zoological objects and individual animalcules. The *spurious* Hydatid is to be viewed as nothing more than a primary cell of the organism, which has become abnormally developed, and increases itself by the generation of *Blastidea*. This cell, says Klencke, has very active endosmotic, and very feeble assimilative, powers; and thus it is that its watery contents accumulate, while scarcely any granular matter is deposited within. All the plastic activity of the increased cell, which is not employed in the process of assimilation, is expended in the production of other cellules within the original one. The latter, in course of time, bursts and discharges its brood. * * * * "I have called," he goes on to say, "these watery cell-growths 'False Hydatids,' seeing that they want that peculiar character of all true hydatids, viz.: a free existence, independent of any of the organic cells of the body. The spurious hydatid, in short, is a pathological not a zoological, object; it arises and grows just in the same manner as the cells of cancerous and other morbid growths."

We may mention also that the Acephalocystis is regarded by Klencke not as a distinct and individual Entozoon, but merely as a containing capsule or ovary of Echinococci.

There is scarcely any organ of the body in which Hydatids have not been discovered; but some are much more liable to be infested with these parasites than others: let us briefly notice them:—

Hydatids in the Brain.

All the different species have been found in the human brain; the spurious form, however, much more frequently than the rest. As this hydatid is not a genuine parasitic animalcule, but merely an irregular primordial cellule, we are not surprised to find that often it does not give rise to any serious morbid phenomena; such as we find very generally to be the case, whensoever true Hydatids have become developed in any part of the cerebro-spinal axis. The false hydatids are rarely inclosed within a general cyst; they are usually strewed or dispersed about in groupes of different sizes. Any symptoms, which may be occasioned by their presence, seem to be the mere effects of the pressure thereby exercised upon the surrounding cerebral matter. Dr. Klencke has attempted to point out the symptoms, which may indicate the existence of the different species of hydatidic growth in the substance of the brain; but, as the attempt is more ingenious than profitable, we deem it quite unnecessary to follow his steps.

The most frequent complication of the presence of Hydatids in the Brain (and indeed everywhere,) is inflammation and its consequences. A common consequence of this is, that the hydatids become enveloped in a serous cyst. This may become so much filled with a watery effusion, as to cause very considerable pressure all around. At the same time, a good deal of fluid is usually poured out into the cavity of the ventricles.

There is one circumstance, connected with the discovery of hydatids in the brain, which deserves particular notice: it is this. Whenever Cysticerci or Acephalocysts are met with in the encephalon, we may be quite sure that we shall find the same parasites in some of the vegetative organs of the body, and in the muscles. There is good reason to suspect that the brain is affected only secondarily or consecutively. This idea is confirmed by the circumstance of the entozoa in the brain being generally less perfectly developed, and more embryonic in their appearance, than those existing in other viscera. For example, we not unfrequently find numerous Echinococci in the substance of the liver, while Acephalocysts only—the embryos, or rather the primary envelopes, of the former—are met with in the brain. Klencke alludes to one case where the liver was full of Echinococci, and a large cluster of Acephalocysts—having a number of distinctly-recognisable, half-developed, Echinococci within—was present in the left ventricle of the brain.

From the circumstance that Hydatids are very generally met with in parts which are most richly supplied with blood, and that they are usually situated close to some blood-vessels, we are naturally enough led to the conjecture that the germs of these animalcules have been conveyed to the spot, where they are found, by the circulating fluids. With respect to the *spurious* form of hydatids, which, as we have already said, are merely elementary organic cells that have become detached, and continue to retain a portion of vitality, they indeed may have been developed in the place where they happen to be found. But this cannot be the case with the true or genuine Hydatids, which are veritable animalcules and zoological individuals. They occupy, it is to be remembered, a higher position in the animal scale than many of the Infusoria; and, as they produce ova, it would be unreasonable to suppose that they are also generated in any other manner. It is by the transmissibility of these ova from one living creature to another, that we are warranted in saying that Hydatids constitute one of the elements of contagious communication.

Before quitting the subject of Encephalic Hydatids, we are tempted to quote the following case from our author:—

A middle-aged man, who had been long affected with a convulsive affection of the eyelids and other parts of the face, became subject to apoplectiform attacks. The symptoms, after having continued for some time, remitted in a very remarkable manner after a free potation of brandy. This circumstance confirmed the suspicion, which our worthy author had previously formed, as to the nature of the case; viz., that there were Hydatids in the brain; "as I had ascertained," says he, "by experiments, that these animalcules (Cysticerci and Polycephali) cannot endure alcohol, and either become by its use torpid, or sicken, die, and are converted into a hard, stiffened mass." (!) The patient survived for a few months—he had taken the nitrate of silver with seeming advantage—and at length died in an apoplectic attack. For some time previous to his death, he had lost the sense of smell in his right nostril, his tongue was tremulous and drawn to the left side, he stuttered in his speech, and his limbs, although not distinctly paralysed, trembled under him. *Dissection.*—In almost every part of the encephalon, numbers of Hydatids or hydatidic granulations were found. On the *falx cerebri* there was a fluctuating

mass, of the size of a cacao-bean: it consisted partly of false Hydatids, and partly of Acephalocysts. The two lateral and the third ventricles were full of them. In the right *corpus striatum* and *thalamus opticus*, there were several Acephalo-cysts as large as peas: the cerebral matter consequently of these parts must have undergone considerable pressure. No hydatids were found in the cerebellum; but a good many Cysticerci were discovered in the *corpora olivaria* and *pyramidalia*. The *corpora quadrigemina* were so distended with water, which contained a few Acephalocysts, that all traces of the *nates* and *testes*, especially of the former, was nearly obliterated: a string of Acephalocysts extended through the mass into the left *crus cerebelli*. Acephalocysts and cysticerci were found in different parts of the lungs, and also in the muscular substance of the heart. But of all the viscera, the Liver and the Spleen, more especially the former, were those in which the hydatids—acephalocysts, echinococci, and cysticerci—were most abundant. On the outer surface of the former viscus, about its middle, but not projecting above it, there was a cyst as large as a pigeon's egg: upon opening it, a countless number of echinococci and acephalocysts flowed out. Numerous acephalocyts were observed on the peritoneal surface of the intestines, and in the folds of the mesentery. The kidneys were free; but a few cysticerci were found in the muscles of the spine.

This case is especially interesting in three points of view. 1. It shows what amount of organic deviation may be present even in the central parts of the brain, without there being occasioned nearly so much distress and suffering as might be expected: this circumstance was probably owing to the gradual and progressive supervention of the diseased formation. It is also worthy of notice, that there was no decided alteration or morbid lesion of the cerebral substance; it was nearly condensed by the presence of the numerous hydatidic bodies. 2. We observe that by far the greatest number of these bodies in the encephalon was of the nature of Acephalocysts, while the Cysticerci were most abundant in other organs, and especially in the liver. This circumstance Klencke regards as strongly confirmatory of his opinion that the liver is primarily, and the brain only secondarily, affected; in short, "that the brain is infected from the liver." 3. Although the liver and spleen contained so many hydatids, no symptom during life indicated any disturbance of the functions of these viscera.

Klencke regrets that he did not examine the blood in this case; but, at the time of its occurrence, he had not so deeply considered the subject of entozoary pathology, as he has done subsequently.

Hydatids of the Liver.

All the different species of these Entozoa, with the exception of the Polycephali, has been found in this very vascular organ. As to their mode of origin, M. Cruveilhier suggests that "the Liver, which receives the entire venous blood of the abdomen, may receive along with it various imperfectly-assimilated organic molecules, which, when deposited in the cellular, or in some other, tissue of the body, may be capable of individual existence."* Such may be the case with the *spurious* form of hydatids,

* Vide the Medico-Chirurgical Review for July, 1841.

which are only detached primordial cells; but mal-assimilation cannot generate—it can merely promote the generation of—genuine hydatidic formations.

The great vascularity of the Liver at once accounts for the frequent occurrence of hydatids in its structure; for they are seldom met with in parts that are not richly supplied with blood. Their presence often gives rise to inflammation of the hepatic parenchyma, immediately surrounding them; and the usual result of this is to cause an effusion of coagulable lymph. The hydatids almost always manifest a tendency to become attached to a blood-vessel, (a vein,) and to make some communication with it. Occasionally a communication is established between a hydatidic cyst and some of the biliary ducts: the bile enters and kills the entozoa: or they may pass along the duct into the intestines, and then be discharged along with the fæces.

Pathologists have observed, in the case of Hydatids in the liver—especially when traces of a previous inflammation of the cyst are present—along with a deposition of a calcareous, gypseous, or cartilaginous substance, that there is often a vitreous or cheesy-looking matter that has become deposited between the different entozoa. This would seem to be a product of the inflammatory action, and to consist of fat and protein.

The so-called spurious Hydatids may at first be easily mistaken by unpractised observers for Tubercles; but their oblong, spindle shape, their granular filling up with blastidia, their transparency at first, and subsequently the existence of a cheesy matter between them—these signs will sufficiently serve to distinguish the one formation from the other.

Hydatids of the Spleen are usually found to co-exist with hydatids of the Liver, Lungs, and other central organs. With the exception of the Polycephali—which seem to be peculiar to the nervous substance—all the other kinds of hydatids have been found in the spleen. Indeed this very highly vascular viscus appears to be a favourite *habitat* of Acephalo-cysts: these creatures may there perhaps await their maturation, before they are admitted into the stream of the circulation, and become more widely disseminated. Certain it is, that this viscus often contains an immense number of very minute acephalocysts, and that they appear to be closely connected, if they do not actually communicate, with its small blood-vessels.

The *Lungs*, too, are frequently the seat of hydatids. In the *uterus*, also, they are not uncommon; generally they are situated under the mucous membrane, but occasionally in the muscular tissue, of this organ. The irritation, which they sometimes occasion in the vessels and nerves of the uterus, and the accompanying increase of size of this organ, when the accumulation of hydatids is great, may give rise to considerable ambiguity as to the cause of the symptoms in many instances of uterine disease. Cases of hydatidic formation have been, not unfrequently, mistaken for pregnancy. An instance is recorded in the Lancet for 1840, where not only the more common signs first of gestation, and then of abortion, were present, but the mammæ also became swollen, and tender, as in cases of genuine pregnancy. The development of Hydatid cysts in the *Fallopian tubes* has been known to give rise to all the symptoms of extra-uterine

fœtation. They are usually associated with hydatids in the ovaria and uterus; occasionally they find their way into the cavity of the abdomen. The presence of hydatids in the Fallopian tubes will sometimes provoke the formation of a sort of deciduous membrane on the inner surface of the womb; so great is the continuous sympathy of these parts.

The *ovaria* are very frequently the seat of hydatidic formations. Sometimes the entire substance of these organs is converted into a cyst, which is full of Acephalocysts and Echinococci;—Cysticerci are rarely met with. The presence of hydatids is often associated with dropsy, hypertrophy, tubercles, &c., of the ovaria. It will, in many cases, require the aid of the microscope to distinguish with accuracy the common sacculated, from the genuine hydatidic, dropsy of the ovaria.

Klencke relates a well-marked instance of hydatids (acephalocysts and echinococci) in the *testicles*, the substance of which was wasted from atrophy. The hydatids extended upwards, along the course of the spermatic cord, into the abdomen. Small hydatidic granulations (probably false hydatids) were found even upon the nervous filaments, which proceed from the renal plexus, and accompany the cord to the testicle.

Hydatids in the Blood.

We not unfrequently find a sac or cyst filled with minute hydatids in the capillaries of a part; the vessel or vessels are sometimes ruptured, in consequence. This circumstance, coupled with the fact that these parasitical animalcules are only met with in those parts where there is an active capillary circulation, has led our author to the opinion that all Hydatids must be deposited from the blood into the tissue of the organ, where they may afterwards happen to be found. Cruveilhier also agrees with our author in regarding the circulation, as the medium or vehicle by which hydatids are disseminated; although (as we have already noticed) his doctrine, as to the origin of these animalcules from mal-assimilated molecules of the organism, is quite untenable. Klencke maintains that he has discovered, and been repeatedly able to demonstrate, the presence of ova in the interior of the genuine hydatids. These ova, he thinks, are originally introduced into the body from without, and infect the system by the development and dissemination of fresh ova within the body. If once a brood of hydatids find their way, either through the alimentary canal or the blood-vessels, into the tissue of any organ, there are various modes of transit by which their ova may be conveyed to other organs. In this manner alone, can we understand how various organs are simultaneously affected in almost every case, where hydatids are present in the body. Klencke alludes to those minute microscopic corpuscles which are often found in fresh-drawn blood; but he does not presume to assert that they are the ova of any animalcule. In the case of a man affected with Acephalocysts in the brain, liver, spleen, and lungs, the blood, drawn from the veins of the arm, neck, and abdomen, was found to contain not only numerous corpuscles, which in every respect resembled the ova of hydatids, but also the same small cheesy agglomerations of cells which are present in many instances of echinococci. Acephalocysts have been found in the blood of the *vena portæ;* and, as they are nothing but the ovaria of echinococci, and are often observed to be in direct communication with

the adjacent capillaries, there is surely nothing unreasonable in the belief that the perfect animalcules may exist in the blood. But direct observation is not altogether wanting upon this point.

In the case of a woman, whose liver was found on dissection to contain numerous cysticerci, Klencke discovered one of these animalcules in the inferior vena cava; and an immense number of them, as well as of acephalocysts, in the blood of the splenic and portal veins, corresponding with similar entozoa in the substance of the spleen and liver. He alludes also to cases where a cluster of acephalocysts was found in one of the blood-vessels of the Pia mater;—a cysticercus in a vessel of the conjunctiva of the upper eyelid;—acephalocysts, free and loose, in the cavities of the heart;—a single acephalocyst adhering to one of the valves of the aorta;—echinococci in a varicose vein of the leg;—and lastly, where acephalocysts have been discovered in the blood which issued from a sanguineous tumour of the elbow-joint; not to mention cases where great numbers of hydatids have been found in encysted watery tumours, in various parts and organs of the body.

For these reasons, we may fairly presume, he thinks, that the blood is the medium by which the genuine hydatids are deposited in the different tissues of the living frame; unless indeed they have been inoculated or directly inserted into these tissues. Their escape and deposit from the blood may be the result either of a rupture of the capillary vessels at some point, or perhaps of suppuration being established in the part, and the consequent erosion of certain of the enveloping tissues.

Now, if we admit that genuine Hydatids are not generated in the blood, although this may be the medium by which they find their way into the various structures of the body, we must suppose that these animalcules must be introduced from without, and consequently have a *habitat* elsewhere;—in short, that they are, in strict language, as truly Ectozoa as they are Entozoa. And since they are found in animals of the most different description, it is surely not unreasonable to imagine that they may be often introduced into the human body in the animal food which is eaten. Cysticerci are especially frequent in pork; and the use of this meat may therefore be supposed to render a person liable to infection with them; more especially as I have found, says our author, that the heat of boiling water is not sufficient to destroy the vitality of their ova. It is a fact that has been clearly proved by observation, that Hydatids are often voided with the excrements; and that even the urine, the saliva, the menstrual fluid, and the milk, (of cows,) have been found to contain them. In short, there seems to be a continual passing of these animalcules into, and out of, the system. We are, therefore, constantly liable to become infected with them. The infection is doubtless often prevented by their being discharged from the bowels; and this usually in a dead state, in consequence of the gastric juice and bile having proved fatal to them. There is also reason to believe that certain medicines—such as Alcohol, Vinegar, Iodine, and Camphor, for example—communicate to the blood a poisonous effect upon the life of hydatids.

Some of the most active poisons seem to have little effect upon the lowest tribes of animals. Thus, the Infusoria and Polypes continue to live in a solution of Arsenic. Strychnine also and Hydrocyanic acid do not

readily prove fatal to them; and the same may be said of the alkaline sulphurets. On the other hand, the spirits of turpentine and of cubebs, creosote, and copaiba balsam, are speedily destructive of hydatids. Ammonia is an active poison to them; but perhaps the most efficient of all is Electricity, directed through the hydatidic cyst. Klencke has tried its effects not only upon lower animals, but also upon the human subject in one case, where hydatids were voided along with the urine. The use of the remedy, along with some potent diuretics, seemed to have the effect of entirely relieving his patient.

If we can believe that the ova of hydatids ever circulate in the blood, we may understand how it should come to pass that the development of these animalcules in a part of the body often seems to be the result of a wound or injury: the ova may escape from the ruptured vessels, and gradually become developed in their accidental abode. I have known cases, says Klencke, where, in consequence of a blow upon the eye, a Cysticercus was (or at least appeared to be) formed within it; also where a large hydatid cyst—containing Acephalocysts and Echinococci—became developed in the liver, after a severe concussion of that viscus. The formation of such cysts after cutting wounds is not an uncommon occurrence. They are frequently met with in the seat of surgical operations.

Klencke maintains that hydatids may even be inherited; their ova being transmitted from the blood of the mother to the fœtus *in utero:* in one case, he found numerous acephalocysts in the liver of a still-born child. Analogous cases have been published by Muller and other pathological writers.

What has been said above respecting the introduction of hydatids into the body, and their multiplication within it is, in our author's opinion, equally applicable to Intestinal Worms. All the latter entozoa are found to be provided with ova; and every physician should know that these ova are frequentiy voided in immense numbers along with the mucus of the bowels. Now the question for solution is—what becomes of the ova when thus discharged? We cannot suppose that Nature intended that they should become forthwith destroyed and annihilated. It has been shown that the ova of intestinal worms, existing in the intestinal mucus, are not capable of being developed and matured within the bowels. They require to be first brought outward into the air, to undergo their primary stage of development, and then to re-enter the organism—not, however, by way of the bowels, but of the blood. When once in the stream of the circulation, the animalcule works its way through one of the capillary vessels into the cavity of the alimentary canal, there to undergo its last metamorphosis—that of the conversion of its entire substance into an organ of generation.* Those who are but little acquainted with the wonderful changes and transformations which different classes of animalcules undergo, will be unwilling to

* If the view here stated be correct, we can readily understand how it should sometimes happen that intestinal worms have been found in the abdominal cavity, and even in abscesses, although no trace be discoverable of perforation in any part of the bowels. The doctrine too of the contagiousness of these parasitic animalcules is rendered, at the same time, tolerably intelligible.

admit what has been now said respecting the life of intestinal worms. But we should remember that no animal can live without having some communication (wechselthatigkeit,) for a longer or shorter period of time, with the external atmosphere. This air-life, so to speak, in the case of these animalcules, appears to be that stage of their existence, which is intermediate between their existing as ova, and as living creatures, capable themselves of generating their like. When they return into the body of a living organism, they seek that part of it, which has the most direct communication with the air, viz.: the blood. It is only for the purpose of depositing their ova, that the animalcules are instinctively led to take up their abode in the intestinal canal. This canal serves the same purposes to these Entozoa, that the cells of plants do to various tribes of insects which infest them.

It is well known that the excessive use of a vegetable diet, drinking of foul and unwholesome water, and residence in a moist relaxing atmosphere more especially if this be liable to be charged with animal exhalations, and putrid effluvia, all tend to favour the development of intestinal worms. These circumstances seem to add weight to the opinion which we have expressed as to the mode of their infection. In those countries where vermination may be said to be endemic—as in Switzerland, Holland, Upper Suabia, &c.—the circumstances of external nature must tend to foster the protection and development of the animalcular ova; and the drinking of impure water afterwards, and the excessive use of vegetable food, will serve to effect their transmission to the interior of the bodies of animals. There is also good reason to believe that the prevalence of gastric typhoid fevers is apt to promote the tendency to verminal disorders.

Intestinal worms are found in all the four classes of Vertebrated animals. If we examine comparatively a great number of Amphibia, Fishes, Birds and Mammals, we shall find that these entozoa are much less numerous at certain seasons of the year than at others. At one period, they seem to disappear almost entirely from the bowels: this is usually about the end of Autumn, and in the Winter. Now, if the blood of the animal be then attentively examined, we shall often have occasion to discover in it a number of animalcules, which by some writers have been called Filariæ, by other Anguillulæ. Klencke has found these animalcules in the human blood, during the Autumn and Winter seasons; and simultaneously with attacks of alarming syncope in the individual. This relation between the disappearance of worms from the intestines, and the appearance of minute animalcules in the blood, is a circumstance that is the more worthy of notice, when we know, on the one hand, that all enthelminths undergo remarkable metamorphoses, and often change their place of residence; and, on the other, that the Filariæ or thread-like animalcules do not, in all probability, belong to one single species, but are rather the evolution-forms of different helminthal tribes. The recent researches of Miescher and Eschricht seem to prove that intestinal worms may be met with under different shapes, and in different stages of transformation.

Klencke says that he has repeatedly found in stagnant waters the same animalcules, which he has seen to exist in the blood of various Vertebrated animals: no difference in their outward features could be perceived either

by himself, or by several friends who had carefully compared both species at his request. All these creatures possess the power of boring through substances of a spongy, or even of a firmer, texture. They vary a good deal in point of size; being sometimes not longer than a blood-globule, and at other times about $\frac{1}{10}$th of a line in length. Whether we may believe that these animalcules proceed from the ova of known intestinal worms, is still a problem of very difficult solution. Certainly many considerations would lead one to believe that such is the case. Their increase in the blood corresponding with their decrease in the intestines, and vice versâ, are circumstances well worthy of serious consideration.

Our author assures us that he has met with minute examples of the *trichocephalus dispar* in the stagnant water of ditches; and he therefore deems it highly probable that they, like the *lumbrici* and *tæniæ*, pass through one stage of their existence out of the living organism. We may mention also here—what we have omitted to do in a former page—that Klencke says that Hydatids are sometimes discoverable in external nature: he has found them in the water of some mineral springs, and likewise in the dung of an asparagus bed, &c. Such assertions as these however must not be received too hastily, nor without further investigations.

In the present article, we have not made any allusion to the experiments which Klencke has performed on dogs, cats, kids, frogs, &c., with the view of shewing that the various kinds of Hydatids, and also the ova of the Intestinal Entozoa, may be transmitted from one animal to another by direct inoculation. We described some of them in our previous notice of his researches; and it seems, therefore, scarcely necessary to give the details upon the present occasion. Suffice it to say that, in his opinion, the results of these experiments are conclusive as to the "contagiousness" of all parasitic animalcules.

There is one circumstance connected with the ova of Intestinal Entozoa that is more than once alluded to by our author, and may therefore deserve notice, viz.: their extreme tenacity of life. The heat of boiling water does not destroy it. Even when they have been kept in alcohol for several months, or when they have perfectly dried and thus preserved for many weeks, they will revive when moistened with water. Dr. Klencke is moreover of opinion that we are not in possession of any therapeutic means that can be fairly said to be directly poisonous to, and destructive of, them; although there can be no doubt of the great utility of certain medicines in expelling the full-formed Entozoa.

The following conclusions will be found to embrace the most interesting facts (dare we call them so?) recorded in this curious production of the German press.

1. There is one species of Hydatid, represented by a semi-individual, watery Cell (*cellula primordialis hydropica sub-individuata*;) it is transmissible:—we have distinguished as the "Spurious Hydatid."

2 Most of the specimens, described by practical physicians as Acephalocysts, are in truth false or spurious Hydatids.

3. Acephalo-cysts are not a peculiar species of Hydatids, but are the ovaria or ovi-holders of a brood of Echinococci. They arise in a threefold manner, viz.: 1. The old Echinococci die off, and the congregated ova remain behind as the residuum of the old, and as the rudiment of the

new generation: in such a case, we usually find that there is a common cyst or cellular envelope.—2. The Echinococci send inwardly bud-like ova, which unite with a central body, while the parent animalcules are converted into dead sacs, and form a genuine Acephalo-cyst: this is the usual way.—3. The Echinococci push out from their external surface gemmæ or buds, which are filled with ova: these, in course of time, become detached, and constitute Acephalo-cysts, capable of future generation.

4. All Hydatids are produced and propagated by *ova*; the Polycephala, however, by *budding* and *division* (gemmiparous and fissiparous); and the spurious Hydatid by *blastidia*. All of them may be communicated from one body to another, and from one organ to another; thus, their generation may take place upon a strange or abnormal bottom.

5. The pathological disturbances caused by Hydatids are dependent upon their habitat or locality, and upon their mode of life: the false or spurious sort, and Acephalo-cysts, never excite *periodic* phenomena.*

6. Hydatids are generally found near to a vascular plexus.

7. In the Brain, they are usually secondary: their spawn-nest (brutherd) being generally situated in some other organ.

8. They are met with free in the Blood, and are then deposited in some one organ, in consequence of the obstruction or arrest of the capillary circulation through it.

9. They are transmissible by infectious communication (ansteckung,) and may therefore be regarded as a sort of *contagium animatum*.

10. The infected system has means in itself to counteract the vitality of Hydatids: there are also medicines and influences which are noxious to parasitic life, without being at all injurious to that of higher organisms.

11. The *Trichinia spiralis* is found exterior to, as well as imbedded in, the substance of the voluntary muscles.

12. It propagates itself by *ova*; thus other organisms or structures may become infected. The ova may be conveyed to various organs through the medium of the blood; their common or general cysts are often obliterated membranes of vessels, the filaments of which are discoverable even in the normal circulation.

13. The *Distoma Hepaticum* is also propagated by *ova*, and is transmissible by means of them.

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* Klencke, in his description of Hydatids in the brain, makes this curious observation. "A diagnostic symptom that the existing Hydatids are not Acephalo-cysts, but are either Polycephala or Cysticerci, is the circumstance that the patient is liable to periodic attacks of pain and syncope. These appear to me to be connected with the greater or less amount of the movements of the animalcule. Every motion of its neck or of the circle of hooks around it must produce a strong irritation of the cerebral substance, and give rise to sudden accidents, which we do not observe when the Hydatids are either of the spurious kind, or Acephalo-cysts or Echinococci." This remark is not altogether original. An interesting case of Hydatids in the chest is recorded in the number of the Medico-Chirurgical Review for July 1841; and, in the observations appended to it, it is expressly stated that "a curious feature in this and in such like cases is the intermittence of the symptoms, and, often too, the sudden invasion of danger, when there must have been a constant and very serious lesion of a vital organ."

14. All parasitic animals, which we have named, have a great tenacity of life.

15. *Lumbrici* and *Tæniæ*, (and by analogy) all intestinal worms, are propagated by *ova;* they must always pass one stage of their existence out of the organism, and return either as ova into the intestines of higher animals; or, having first lived through an intermediate stage as bore-worms, they find an entrance into the tissues, then seek out the blood, and ultimately undergo certain changes or transformations, according to the place of their destination.

16. Intestinal worms do not always give rise to symptoms of Vermination; the pathic or morbid condition of the bowels is always secondary: to it we can never attribute the generation of the worms, but only the development of their already-existing germs.

17. There are various means to destroy completely-formed worms, but they have no effect upon their spawn or embryotic brood.

A PRACTICAL TREATISE ON HEALTHY SKIN, WITH RULES FOR THE MEDICAL AND DOMESTIC TREATMENT OF CUTANEOUS DISEASES. By *Erasmus Wilson*, F.R.S. 8vo. pp. 356. London, 1845.

WE have perused this work with regret, and feel constrained to speak of it with disapproval, which we can the more readily do, inasmuch as our notices of Mr. Wilson's former publications prove that we have at all times been able to appreciate and do justice to their able and highly useful characteristics. It does not, however, follow, that an author, who is well occupied in imparting to his professional brethren the results of his experience, research, or meditation, is properly employed when he comes to discourse upon similar matters with the public at large. There is in fact but one subject upon which a medical writer should ever allow himself to address the public directly upon—the all-important one of *Hygiene*, or the preservation of health and prevention of disease. Upon this he cannot be too communicative; and the numerous and valuable works, which have appeared relating to it, testify to the disinterestedness of our profession, as well as to its utility in other respects, besides being that of the art of healing. But it unfortunately happens that few authors, except perhaps Combe, have been contented to confine themselves within these limits, spacious as they are, but seem to consider it incumbent upon them to enter into anatomical and physiological details to an extent that can neither be comprehended nor retained by their readers, or would prove beneficial to them if this were possible. Far worse than this, is the practice, become so general, of supplying popular descriptions of diseases, and of the means of treatment by which their removal may be most readily effected. Mr. Wilson's book is an example of both of the errors we have indicated; and exhibits a yet farther mischievous tendency in its advocacy of the hydropathic treatment of disease. All this might be expected, although not excused, at the hands of a man writing for popularity and notoriety; but is indeed grievous, when found to proceed from one who has acquired for himself a respectable professional *status*. So pernicious do we consider an example of this kind, that we must crave permission to say a few more words upon each of the points to which we have alluded.

First, then, the work treats too minutely of the anatomy of the skin. We are no opponents to the diffusion of knowledge, but we are quite at a loss to con-

ceive the advantage that can ensue from the popularizing the results of microscopical investigations in anatomy. The general outlines of the structure and functions of the human frame may be advantageously communicated to the public, but all beyond this should be looked upon as professional knowledge, whose general diffusion would be useless and ridiculous. It is difficult enough for the man in practice to keep himself acquainted with the progress and even the nomenclature of medical and accessory science, albeit it is necessary for his improvement that he should take some pains so to do; and yet it is attempted to impart such knowledge to the mere *dilettante*, unprovided with any preliminary information whatever. Mr. Wilson, not content with presenting an epitome of the cell theory and plates and descriptions of the microscopical structure of the skin, feels it incumbent upon him to give a popular account of his paper on the *Entozoon Folliculorum* in the Philosophical Transactions. We look upon this as positively derogatory. Let a man record his investigations in appropriate channels for communication with those who can appreciate and understand, contradict or confirm, them; but surely he should avoid dragging them into public view for the mere purpose of exciting and gratifying the gaping wonderment of ignorant readers. We venture to say that Simon, the discoverer of the parasite, whose paper in Müller's Archiv. he refers to, would not have condescended to such showman-like proceedings. The taste, too, with which our author introduces to the notice of his lady-readers a magnified view and description of the Itch-animalcule, seems somewhat questionable.

Secondly, although some of our readers may not agree with us in considering the development of minute anatomical or scientific facts to the public, if unprofessional, or at all events, a very unworthy occupation for a professional man of any standing—yet we suppose that there are none but will join with us in deprecating the publication of popular accounts of the characters and treatment of disease. Well, here we have the author's classification of cutaneous affections stated, and superficial descriptions of each malady, and the means of managing it supplied. Mr. Wilson may tell us that he is ever and anon pointing out to his readers, that, when a disease is constitutional, serious, or obstinate, they must cease to rely upon their own judgment and resort to professional aid. This is sheer nonsense. To enumerate a number of diseases, some of which are simple, others serious, and many of which may be readily confounded with each other; and to encourage people to believe that they can distinguish the one from the other, and even up to a certain point treat them, is equally unjust to the public as to the profession; holding out to the former hopes which can seldom be realized, and the attempting at whose fulfilment may often be attended with danger and delay, and depriving the latter of the opportunity of seeing diseases when they can be most effectually and most creditably treated, before bungling attempts at self-management have rendered them complicated and obstinate. The uninformed person, even as to the nature of his disease, will try first one plan and then another, with all the impatience and indiscrimination that ignorance engenders, and after exhausting all the author's precepts and formulæ (some of which contain substances ill-adapted for popular use,) and finding his malady becoming worse instead of better, will at last be driven to resort to persons who have made the study of the detection and treatment of disease the business of their lives, and whose advice and assistance, but for the misleading of this book, he might have so much more advantageously sought in the first instance. So impossible does it seem to us for well-informed medical men to believe that they can advantageously instruct the public upon professional topics, that we always suspect their attempting to do so. A name and practice, it is true, may be so built up, and the inditing a book has frequently been the formula recommended for constructing one; but we look upon the addressing the public directly upon such topics as an illegitimate practice, and that the only sound procedure is to confine the exhibition of our acquirements to our professional brethren, who alone can

appreciate them, and who are always willing to assist in making them lucratively known.

Thirdly,—The course Mr. Wilson has taken in respect to Hydropathy, is a very extraordinary one. He seems to have seen little or nothing of its practical operation, but furnishes large extracts from Dr. Wilson's work upon the subject, and from these has composed a glowing eulogium on the practice and its founder, Priesnitz. He is of course quite at liberty to entertain any opinion he pleases of the therapeutic powers of this remedy; but, even allowing he believes it may one day become, in the hands of medical practitioners, a powerful agent for the production of effects which are not producible in a less objectionable manner, which is indeed very much more than we should like to confess anticipating, even supposing he does or is about to try its efficacy among his patients, is he, when he knows it is at least *sub judice*, and its practical carrying out is, for the most part, *now* in the hands of quacks and impostors, justified in delivering, in a work like the present, so decided an opinion in its favour to the public, who will quote his authority and adopt his recommendation, irrespective of the very few cautionary observations by which it is accompanied. Moreover, there was no call for any notice of the system whatever, as his remarks are not directed to its application for the treatment of cutaneous affections in particular, but of disease in general. One caution he gives, some we have no doubt will take care to prominently bring under extensive public notice, viz., that it is only in hydropathic "institutions" that the water-cure can really be effectually carried out.* "I trust the day is not far distant when we shall see such institutions, *hygienic sanatoriums* (!) in fact, in the neighbourhood of all our large cities, and at our watering-places." We trust that the day is not far distant when men who have helped on the progress of medical knowledge, who are teachers of our rising generation of practitioners, and members of our only scientific society, men such as Herbert Mayo and Erasmus Wilson, will cease to ally themselves with and defend the gross but popular delusions of their epoch. We have thus not only to complain of the assaults of quackery from without, but every now and then to endure the mortification of witnessing honoured members of our own body quit our ranks, place themselves side by side with quacks, impostors, and amateur doctors, and do battle against us.

We do not deny that Mr. Wilson's volume contains some valuable observations relative to hygiene, although this subject has been far more ably and amply dealt with by Combe. Extricated from the miscellaneous information on minute ana-

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* It may gratify our author to learn, that no less a personage than Sir Edward Bulwer Lytton is of the same opinion with himself upon this point. Not satisfied with the honours of the poet and ready novel writer, the literary Baronet has become an *amateur-médecin*. In his "Confessions of a Water Patient"—a pretty little book for the drawing-room table—he records the results not only of his own personal experience, but also of his observations upon others, in various places, and especially at "beloved Malvern." As a matter of course, the narrative is adorned with classic allusions, scraps of poetic thought, and sweet sentimentalisms. The wet sheet is described as "a magic girdle in which pain is lulled, and fever cooled, and watchfulness lapped in slumber;" and then there is something about "Undine in her virgin existence and in her wedded state," which we must confess that we do not understand. There is one exquisite *morceau*, which we must find room for. After a glowing description of the delights of a hydropathic establishment, the Baronet triumphantly exclaims;—"Compare this life, O merchant, O trader, O man of business, escaping to the sea-shore, with that which you there lead—with your shrimps and your shell fish, and your wine and your brown stout—with all which counteracts, in the evening, the good of your morning dip and your noonday stroll."

tomy, receipts for preserving the complexion, instructions for washing the face and paring the nails, eulogia on hydropathy, descriptions of diseases and formulæ for treatment, they would form but a thin pamphlet which might even be spared. Notwithstanding what we have said of the work, we do not doubt (for its faults will prove with many its attractions) it will soon reach a second edition; and we would suggest to its author, as a means of giving additional attraction to it in the eyes of the classes who will be its chief perusers, the furnishing, in an appendix, a succinct account of the *Syphilides*—a class of diseases in which hydropathy is vaunted as pre-eminently adapted for treating!

A MEMOIR ON AMPUTATION OF THE THIGH AT THE HIP-JOINT (WITH A SUCCESSFUL CASE.) By *William Sands Cox*, F.R.S., &c.

MR. COX, having performed a successful operation at the hip-joint, ventures, as he says, *with diffidence, to call the attention of the profession* to the subject, and to the case herein recorded, under the firm conviction that very many lives may be saved by the operation. We have an equally firm conviction that, in civil life, the cases in which such an operation is required are extremely rare, and that, if the operation were to be often performed, very many lives would be sacrificed instead of being saved; and we know that such is the opinion of the best surgeons in the present day. Mr. Cox, after briefly alluding to the numerous successful and unsuccessful cases of amputation at the hip-joint, proceeds to enumerate the causes which may render the operation justifiable. These he gives as follows:—1st. Compound fractures and compound dislocations, or other severe injuries, of the head, neck, and upper part of the femur. 2dly. The removal of the thigh by machinery. 3rdly, Mortification. 4th. Caries and osteo-necrosis. 5th. Exostosis and Hyperostosis. 6th. Various tumors of a non-malignant character, viz., osteo-sarcoma, osteo-steatoma, spina ventosa. Notwithstanding this array of causes, the fact that the operation has only once been performed in the large hospitals of this great metropolis for a period of thirty years, affords satisfactory confirmation of our remark, that the cases requiring it are extremely rare. There are enterprising surgeons, who would gladly avail themselves of a fair opportunity of resorting to such an operation, and there are others, whose tried skill and resolution as operators forbid the supposition that they would shrink from undertaking the operation in any case that needed it. The truth is, with active assistants, such as may be obtained at every hospital in the metropolis, the operation, though formidable and dangerous, is not one of any great difficulty.

The author, after making some anatomical remarks on the parts concerned in amputation at the hip-joint, gives a description of the various modes of performing this operation. They are to be found in all recent works on operative surgery, and need not therefore detain us.

The subject of Mr. Cox's operation was Elizabeth Powiss, æt. 23. She had undergone amputation of her left leg above the knee 14 years ago, in consequence of disease of the knee-joint. The integuments around the cicatrix of the stump afterwards ulcerated, and a substance formed on the posterior surface of the stump, which was extremely painful. The ulcerations never entirely cicatrized. About six years after the operation the integuments became hard and thick, and she experienced a sensation as though pins and needles were sticking in the stump; at length, fungous growths showed themselves on the surface, and the parts became more and more painful. She was subjected at different times to a variety of treatment with no permanent benefit. She was re-admitted

into the Queen's Hospital, July 1, 1844, at which period the stump presented the following appearances :—

"The integuments extending upwards, anteriorly, for about three inches, and posteriorly for about four inches and a half, are of a dull white colour, and of a cartilaginous hardness; and above this, for a limited extent, anteriorly, posteriorly, and laterally, the same parts have a glazed, corrugated appearance, like that presented by an old cicatrix. Patches of fungous growth, of a livid colour, protrude from a half to one-third of an inch from the general surface, at intervals. From these excrescences blood occasionally exudes, and at times a sanious fluid. These excrescences are extremely tender, and bleed on the least touch. The integuments of the upper part of the stump are of a perfectly healthy character and feeling. There is no enlargement of the cutaneous veins, or of the inguinal or femoral glands. The stump generally is tender to the touch; the pain nearly constant, sometimes of a dull, aching character, at other times throbbing." P. 31.

Various remedies were again applied, but to no purpose; and, as the fungoid growths and morbid condition of the integuments continued to extend towards the body, the patient became anxious that amputation should be performed, and the dis-articulation at the hip appeared to Mr. Cox and his colleagues as the only operation likely to be attended with permanent success.

Nov. 1st. The amputation was performed by an anterior and posterior flap. The only circumstance of novelty or interest, which we notice in the account of the operation, is the use of the horse-shoe compressor, invented by Dr. Segnoroni of Padua, which was applied on the external iliac artery as it passes over the body of the os pubis. It completely commanded the hæmorrhage from the anterior flap. It is impossible to follow the author in his tedious and uninteresting narration of the daily and even hourly state of his patient after the operation, and the minute account of the treatment. It is sufficient to mention that her recovery was gradual, and the stump was not entirely healed until Feb. 5th, 1845, more than three months after the operation.

The following account is given of the parts removed :—

"*Integuments.*—On making a section of the diseased mass, the whole of the integuments inferiorly to the extent of about four inches were converted into an indurated mass of cartilaginous hardness, of a pearly whiteness, from three-eighths to five-eighths of an inch in thickness. Under the microscope, this structure appeared cellular and vascular, with myriads of minute globules, interspersed with spindle-shaped bodies, as observed by Muller in various tumors.

"*The cellular and adipose tissues.*—These tissues were in considerable quantity: the latter remarkably dense and intersected with fibrous bands.

"*The muscular tissue.*—The muscles presented a peculiar granular appearance, were softened in texture, intersected with fibrous bands, and with the exception of the muscles inserted into the trochanters, appeared to have undergone fatty degeneration." P. 42.

The description is illustrated by a coloured representation of the parts. The disease appears to have been of a fibrous character; and to have formed intractable ulcers, which were morbidly sensitive, the patient being hysterical. We entertain no doubt as to the necessity for the operation in this case. The disease had extended so high up, that Mr. Cox was even compelled to include in the posterior flap a small patch of fungoid growth, which was afterwards destroyed by caustic during the progress of the cure.

At the end of the Memoir we find two statistical tables—one of successful operations—the other, of unsuccessful. During the period of a century there have been, in various parts of the world, 26 successful cases, and 58 unsuccessful cases, making a total of 84. Of these, 29 have occurred in the United Kingdoms, 14 in civil life, and 15 in the army; 8 were successful, and 21 unsuccessful.

We cannot conclude without questioning the good sense and good taste of Mr. Cox in this expensive publication. The Memoir much curtailed—with the omission of the description of the anatomy of the parts concerned in the hip-joint amputation—of the different methods of performing it—and of many particulars in the account of Powiss' case, would have made an excellent paper for the Transactions of a Medical Society, but there is nothing in the Memoir of sufficient interest and importance to render it worthy of separate publication. We think that too much has been made of this case. When we opened the book, and noticed the showy, but not very decent, fontispiece, representing Mr. Cox's patient decked out in a smart cap and gown, &c., displaying her naked abdomen and hip from which the limb had been removed,* it forcibly recalled to our mind some of those street-exhibitions of respectable looking beggars endeavouring to excite the compassion of the charitable, by exposing to view their disgusting deformities. Mr. Cox must know that this coloured plate was not needed to elucidate the case, or to instruct the profession. It is but too obvious, notwithstanding the announcement of the author, which we have quoted in Italics, that this work was intended for the eyes of the non-professional public, rather than for those of professional men, and the impression we received is confirmed by a long list of 262 subscribers, including Prince Albert, of whom 35 only are medical men. Its charitable object is no excuse for the style and mode of this publication, which our respect for the credit and dignity of our profession obliges us to declare is unworthy of a Provincial Hospital Surgeon, a Fellow of the Royal Society, and of the Royal College of Surgeons of England, &c., &c., &c.

A CLINICAL INTRODUCTION TO THE PRACTICE OF AUSCULTATION, AND OTHER MODES OF PHYSICAL DIAGNOSIS; INTENDED TO SIMPLIFY THE STUDY OF THE DISEASES OF THE LUNGS AND HEART. By *H. M. Hughes*, M.D., Assistant Physician to Guy's Hospital, &c. Small 8vo. pp. 246. Longman and Co. 1845.

THE reason assigned by the author for the publication of this manual is that, in his opinion, "a work was wanted in which should be simply explained to the student of auscultation, not merely the origin, character and diagnostic value of certain physical signs, but also the manner in which he should proceed to elicit them." Previous works on the same subject are alleged to be ill-adapted for beginners, in consequence of their containing "such a profusion of terms and such lots of bruits and râles." We therefore naturally expected to have found that this most vexatious evil was religiously eschewed by Dr. Hughes; but we regret to say that he has not kept to his text in this respect; nor have we been able to discover that his expositions and explanations are at all more simple and intelligible than those given in other treatises upon the subject, or in any of the recently-published Lectures on the Practice of Medicine—Elliotson's or Watson's for example. One striking blemish of his work is the introduction of a good deal of most uncalled-for matter. Among the "Necessary qualifications of the student of Auscultation," we are told that "a certain amount of knowledge of anatomy and physiology is necessary to the practical auscultator," and that "some general knowledge of the ordinary symptoms and results of morbid processes is requisite to the student, at even the very commencement of his

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* We learn from a note that the profits of the work are to be given to the poor patient.

course." Who could for a moment doubt it? Would any one dream of teaching seamanship to a boy, who had not learned the names of the masts and yards of a vessel? or of instructing him in the use of his quadrant, before he had acquired some knowledge of arithmetic and the elements of astronomy?

The different modes of exploring the chart are treated of under the heads of Inspection or ocular examination—Palpation or manual examination—Percussion—Auscultation—Mensuration—and Succussion.

In the remarks upon the first of these modes, we are informed that it must be "obvious that the surface (of the chest) must be either entirely bare, or clothed with a tight elastic vest." We should think so indeed. Dr. Hughes is also particular in his admonitions to the medical man to be most decorous in all his doings with female patients. Hence, doubtless, the suggestion that, "if the patient be in bed, the lower part of the thorax may be concealed by the bedclothes, while the superior regions are submitted to inspection, and these in their turn may be covered with a light shawl or handkerchief thrown lightly across the shoulders, while the inferior region is submitted to the same process." In a subsequent part of the volume, the student is told that, "by some persons it may be considered indelicate to apply the naked ear not merely to the bare chest, but even to the unrobed, though slightly covered, parietes of female patients;" and, as if this remark were not sufficient, our fastidious author proceeds to observe that, if it be deemed advisable to apply the ear directly to the chest, "the skin should be covered with some soft yielding material, either appertaining to the patient's dress, or obtained from the attendants." It would be difficult indeed to conceive from what other quarter the doctor is to get the soft material, unless it be out of his own pocket, in the shape of a silk handkerchief. We must not omit to state "that, in the case of uncleanly individuals, some protection should be used;"—moreover, this remark is, by the bye, strictly original, as far as we know—"that, when the chest of male patients is thickly clothed with hair, the hair must be removed before immediate auscultation can be satisfactorily performed!"

In his description of Percussion, Dr. Hughes seems to attach a good deal of importance, in the diagnosis of the early stage of Phthisis, to the character of the sounds elicited by percussing the acromial region (immediately above the clavicles.)

At best, the information obtained from percussion in these parts is generally most unsatisfactory, and but little trustworthy. Percussion of the clavicles themselves, and of the infra-clavicular spaces is much more to be depended upon.

In the account that is given of Mediate auscultation, we were a good deal surprised at the following passage. Speaking of the Stethoscope, our author says: this instrument "is merely a conductor. It may, indeed, as in the flexible stethoscope, conduct by the air contained in the hollow of the tube alone; it may, as in the ordinary stethoscope supplied with a nipple-like appendage for the external meatus, conduct both by air within the bore of the cylinder, and by its solid walls,—or it may conduct by the solid walls alone." Are we to understand that the walls of any sort of stethoscope do not assist in transmitting the sounds from the chest of the patient to the ear of the auscultator?

We had hoped to have been able to have noticed some of Dr. Hughes's observations on the auscultatory phenomena of several pulmonary diseases; but our limited space entirely prevents this. One or two points on cardiac auscultation are all that we can allude to.

The cause of the double sound, or *too-to*, of the heart is thus explained:—

"*Origin of the second Sound.*—If the cock of a leaden pipe, which is not firmly fixed to its solid support, be turned, and a full stream of water be allowed to pass through the aperture which that cock controls, little agitation of the pipe is induced by the mere passage of the fluid. If, however, while the water is

passing with rapidity and force, the cock be suddenly turned, and the passage of the fluid through the aperture be in consequence suddenly arrested, a very considerable agitation of the pipe will be immediately perceived, and a corresponding noise will be heard. This agitation, and this noise, are clearly the consequence of the vibrations excited in the fluid by the sudden arrest of its onward progress; which vibrations are communicated to the solid walls of the pipe, and thus become obvious to the eye as well as to the ear. Another illustration may be taken, from what is seen to occur at the closure of a lock on a river. So long as the water continues to flow through the constantly narrowing opening between the two arms of the lock, there is no agitation in the back water. But immediately the two arms meet, a violent shaking is observed in the wood of the lock itself, and in the water which is behind it. This is evidently produced by the sudden stoppage of the stream."

What the turning of the cock does in the one instance, and the closure of the lock in the other, the flapping back of the sigmoid valves is supposed to do in the case of the heart:—"These flood-gates suddenly stop the backward progress of the blood: and this sudden stoppage of the forcible current produces a violent agitation in the particles of the blood, which is communicated to the coats of the vessel, and thence to the parietes of the chest. *Hence arises the second sound of the heart.*"

The *first sound* is, in like manner, produced by the sudden closure of the auriculo-ventricular valves arresting the retrograde progress of the blood into the auricles, during the contraction of the ventricles. "This sudden stoppage of the blood produces a violent agitation in the fluid, which is communicated to the body of the ventricles, and thence to the parietes of the chest."

With respect to the differences in the exact situation or point of the chest, at which abnormal sounds or murmurs are heard, and in the exact moment of time, at which they occur, viewed as characteristic indications of what particular valves are mainly affected, the impression, left on the reader's mind by Dr. Hughes' description, will (we should say) be that the diagnosis of the precise seat of the cardiac disease is considerably easier than he will really find to be the case in practice. The discordance of opinion among recent writers on these very points sufficiently attests how difficult this discrimination is. As an example of the very hypothetical character of many of the statements on the subject of cardiac auscultation, we may adduce the following short paragraph as to the supposed seat of the blowing and other murmurs, that are so commonly heard over the region of the heart in chlorotic girls. "They are very generally supposed to be confined to the aortic openings. This is certainly a mistake. They are most assuredly very frequently connected with the pulmonary artery, in which murmurs, quite independent of any disease of the vessel, or of its valves, are far from uncommon."

What, pray, are the grounds for this *assured* belief? And here we may, *en passant*, allude to another point in the history of Chlorotic murmurs, wherein most sage doctors differ. In Dr. Hughes' description of the "continual humming sound" or "venous murmur," so frequently met with in the necks of chlorotic girls, we read that "it most probably depends upon partial obstruction to the quickened flow of blood through the veins. Strong pressure causes it to cease: but without pressure, *directly or indirectly applied*, it is, I believe, never heard." Compare this statement with that of Dr. Latham in his recent volume, of which we gave so ample a review in the number of this Journal for last July: "The truth is, a very free current of blood is essential to the production of this venous murmur. A slight degree of pressure upon the vein will alter its character, and pressure, very far short of that which would arrest the current of the blood, will abolish it altogether." This very peculiar sound is sometimes remarkably distinct in that triangular space between the outer edge of the sterno-mastoid muscle and the clavicle: it conveys the idea of a continuous rushing of

a fluid along a tube, and is not unlike that of the water rushing up the main pipe of a house, when the water is "turned on."

If there is one reflection more than another that has been forced upon our minds by the perusal of Dr. Hughes' work, it is that of the danger of trusting too much to what are called the *physical*, and too little to what have been (absurdly enough) denominated the *rational* symptoms, in our diagnosis of pulmonary and cardiac diseases. Far be it from us to undervalue the importance of Auscultation; it is unquestionably a most useful handmaid or auxiliary, but *by itself* it is apt to become a most arbitrary mistress, and a most deceptive guide.

MEDICAL REFORM.

AN ADDRESS (The Third.) By the Society of Apothecaries. Highley, 1845.

LE JOURNAL OFFICIEL DU CONGRÈS MÉDICALE DE FRANCE. Paris, 1845.

As we foresaw, the apathy of a portion of the general practitioners, and the violent dissension of another portion, have encouraged the two incorporated bodies to oppose their just demands, and indefinitely delayed the accomplishment of their wishes. We say indefinitely, for he must be a bold man, who, in the present state of politics, can imagine a Home Secretary, with sufficient leisure and inclination to examine into the contradictory statements with which he is supplied. Who knows, too, but some other minister may require as laborious a process of conversion or education bestowed upon him as did Sir James Graham. Under the present state of things then we need not enter into any examination of the last Bill, as, like its predecessors, it is doubtless destined to undergo alterations before being presented to Parliament. In the mean time, we may observe that we entirely agree in the opinions put forth in the "Address," and in the "Transactions" of the National Association, viz. that the arrangement entered into with Sir James Graham was satisfactory, and should be considered final, as far as concessions on the part of the general practitioner are concerned, and that no Bill should be received unless harmonizing with such arrangement. In the present uncertain state of affairs, the only means the profession has for obtaining its rights is the maintenance of the firm front which the union of numbers alone can give, and therefore we consider the continuance of the organization of the "National Association" is of the last importance. It is the most imposing body ever yet marshalled in the cause of Medical Reform, and by the temperate, yet firm, line of conduct it has pursued, has well earned the confidence of the profession. The willingness, with which the Apothecaries' Company has offered to divest itself of its present privileged position, is highly praiseworthy. Looking upon the efficient examination of future practitioners as by far the most essential of all the circumstances to be provided for, we cannot but rejoice that this is not to be undertaken, as at present, by his own grade of the profession alone. This is the leading defect in the present system, and whether it is to be remedied by the more simple plan proposed by the Association of selecting eminent men to aid the examiners, or by the more complex system of a double examination, is of comparatively little importance.

The extreme section of medical reformers in this country have been always accustomed to cite the condition of the Profession in France as one especially serviceable, and infinitely superior to that which prevails among ourselves. Strange to say, our neighbours have long been of a very different opinion, and have demanded and been promised a reformation respecting it for the last twenty years. What the government has failed to produce, a voluntary association

meeting at Paris in November, the "*Medical Congress*," has endeavoured to originate. Although subsequent to our own movements, that in France was not undertaken in imitation of it, but more from an almost random suggestion of M. Amedée Latour, the talented and witty contributor to the *Gazette des Hôpitaux*, under the pseudonym of "*Jean Raimond*." The rapidity with which this was acted upon proves a mine of discontent was already laid, upon which it operated as the spark. Five thousand names were enrolled, and from 600 to 1000 persons assisted at the deliberations of the Congress during its fortnight sitting at Paris. The business was well, systematically, and almost unanimously executed, consisting chiefly of detailed and elaborate expositions of the present position of the profession in France, and of the urgent necessity for its amendment. Although the Congress was regarded as a hostile demonstration by most of the professors and hospital officers of Paris, yet several men well known to the profession took part in its deliberations, and the Minister himself was present on more than one occasion. The Crown has already nominated a Commission for inquiry into the state of medical education, and has promised, ere long, to prepare a Bill, embodying at least some of the proposals of the Congress, though by no means giving sanction to others. Having perused the debates of the Congress with great care, we have come to the conclusion, that the practical evils, under which the profession labours in France, are far greater than those which have afflicted it in our own country. We can, however, only glance at a few of these, in noticing some of the conclusions arrived at by the Congress.

1. That there should be but one order of medical practitioners. This is not so visionary a demand in France as it would prove in our own country. Under the title of *Officiers de Santé*, half-educated practitioners are allowed to practise, and are distributed over the whole of France, to the amount of some 8000 to the 19 or 20,000, or according to others, 28,000, doctors of medicine or surgery. These men are furnished with the merest rudiments of knowledge, and yet among the ignorant frequently contrive to oust their better-educated neighbours. A man, who is rejected as too ignorant for a doctor's degree, may at once obtain a right to practise as an *Officier de Santé*. The number of these men, compared with that of other practitioners, is upon the increase, and so great is the evil done to the profession by the admission of such a class, that its suppression is everywhere demanded. This is not so easily effected; for ignorant as they are, for the most part, they seem to have possessed themselves of considerable influence, while their suppression would leave the poor and thinly-habited districts of France unprovided with medical aid. It seems, however, that in rural districts the profession has not only, or even chiefly, to struggle against these men, but against the *clergy*, who impudently take on medical pretensions, and do not hesitate even to pass pessaries, or attend women in child-birth!

2. That although fees in private practice should not be regulated by law, yet when a practitioner is called upon public services, he should be liberally dealt with. At present it is quite the reverse of this; for 2 francs seems to be the sum which practitioners get for the same services in law-courts, &c., for which ours receive their guinea.

3. The right of claim of a debt for attendance shall extend to five years. At present the debt is not recoverable if not applied for within the year after treatment has commenced.

4. A more efficient repression of illegal practitioners. However peremptory the laws against quackery may seem to be, they are rendered inefficient by the power of enforcing penalties being optional, and by the ridiculous small amounts to which these extend. We gather from the accounts of the different speakers, that illegal practice is as rife in France as with us. Quack advertisements equally infest the public places and journals of Paris as of London; and worse still, we find the columns of the *Gazette des Hôpitaux*, the stern denouncer of all abuses,

admitting announcements of the widely celebrated "Pillules Morison," and the like.

5. Foreign practitioners settling in France are to undergo the same examinations and give proof of the same courses having been attended as French students do.* One can hardly believe that so unjust and insulting a proposal could have been made and carried. According to this, no matter what eminence a man may have obtained, or what diploma in proof of this he may present, he is to undergo the same ordeal as if he had never been examined or studied at all.

6. The midwives form a very large body in France, very much greater in proportion than with us. The Congress does not venture to ask for their suppression, although not doubting the benefit of their abolition, if their place could be supplied; but insists that they shall be prohibited undertaking any operations but bleeding and vaccination.

7. The Congress demands that all appointments to hospitals, &c., shall be by *concours*. This is by no means the case at present, some only of these being so filled up. We certainly deem this the least objectionable mode, and many of the most eminent men in France would never have been heard of but for its operation. It is, however, anything but the pure process at all times which some believe, since the judges are not infrequently canvassed and endeavoured to be influenced by all sorts of underhand procedures. The Congress also considers it very unjust, that after a man has qualified himself for the post of hospital physician, &c., and has obtained it, he is yet liable to removal every five years by the council or minister. It insists likewise that Professors reaching the age of sixty-five should fall back into honourable and easy retirement.

We will only notice two other circumstances connected with the deliberations of this body: one is the revolting fact, that, whenever any mention is made of providing the necessaries for instruction in the schools, "live animals for operations and experiments" are mentioned as a matter of course. M. Amussat says they form "the natural transition between operations upon the subject and upon man!"

The other circumstance is that the *pharmaciens* (chemists with prohibition from prescribing and monopoly in compounding) and veterinary surgeons, furnished considerable contingents; and that the former set their faces steadily against quack nostrums and advertisements, illegal practice of medicine, and connivance between chemists and practitioners, common in France as well as here.

It will be seen, then, that the profession in France has many subjects of complaint in common with ourselves, and some we are happily free from. At all events, it is at present no model for our imitation.

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* During the discussion upon this topic, M. *Malgaigne*, one of the ablest surgeons of France, and the popular orator of the Congress, displayed the grossest ignorance of the nature of the qualifications of the practitioners in England, as the following passage shews: "They tell you that foreign universities are as good as our own, and they have spoken of England. There, there are no Faculties, but only Private Schools which send forth three classes of practitioners. First there are the *physicians*, a grade corresponding to that of our doctor of medicine, and who are truly learned and able men; then come the *surgeons*, our *officiers de santé*; and lastly, what they call the *apothecaries*, whom I can only compare with the *barbers* of the eighteenth century. Well, are these men, these barbers, to come over here and demand to be assimilated with our doctors? That can never be!"

The Descriptive and Physiological Anatomy of the Brain, Spinal Cord, and Ganglions, and of their Coverings. Adapted for the Use of Students. By *Robert Bently Todd*, M.D., F.R.S. 8vo. pp. 284. London: 1845.

We are happy to find that Dr. Todd has published, in a separate and convenient form, his account of the Nervous Centres, which appeared originally in the Cyclopædia of Anatomy and Physiology. Dr. Todd states that he "has been induced to submit this book to the public in its present shape, by the frequent complaints which have reached him from students and others, of the want of a description of the brain and spinal cord, embodying the most recent observations on the anatomy of these important organs." We have, in the two preceding numbers of this Journal, had occasion to speak in such favourable terms of the article "Nervous Centres," that it only remains for us to state, in this place, that the work before us being, as the author informs us, a reprint of this article, will place those who study it on a level with the existing knowledge in this interesting department of animal organization. The treatise is illustrated with a considerable number of well-executed and judiciously selected wood-cuts; and we can, with strict justice, unhesitatingly recommend it, not only to those for whose use the author has more particularly designed it, but also to those who are engaged in active practice.

Leçons d'Anatomie Comparée de Georges Cuvier. 2e Edition, corrigée et augmentée. Tome III.; contenant le Système Nerveux et les Organes des Sens; revu par MM. *F. G. Cuvier* et *Laurillard*. Paris, 1845.

It is well known that the illustrious author of the *Leçons d'Anatomie Comparée* had, for a long series of years preceding his lamented death, devoted his great talents and unceasing industry to the preparation of what he called his "Great Comparative Anatomy," which, if he had been spared to realise the conception, would have been to these "Leçons," what the *Règne Animal* was to its humbler predecessor, the "Tableau élémentaire des Animaux"—the finished picture as contrasted with the mere outline.

The Editors state, in their Preface to the first volume, that Cuvier, "during thirty years, had never ceased accumulating, in his collection and in his portfolios, the materials for this immense undertaking." But the magnitude of the enterprize and the consequently distant period of its achievement, induced him to render these "lectures," in the interval, as complete as possible: in this way arose the idea of this augmented and corrected second edition, in the preparation of which he was occupied with his accustomed ardour when he was, alas! surprized by death. There attaches thus a peculiar interest to these tomes, bearing, as they do, the last impress of genius, and, imperfect as in some respects they are, they will be treasured, in after-times, like the unfinished sketches of the great masters of painting, Raffaelle, Domenichino, and the Caracci.

In the volume lately published, the Editors inform us, it has been their aim "to present, in the limited space of a volume, a résumé of the immense number of works of which the nervous system and the organs of the senses have been the object during thirty years; and at the same time to preserve, as far as that was possible, the frame-work and the text of the first edition;" a task of great difficulty, especially as it appears that this portion of the lectures had not received

the advantage of Cuvier's own revision. By availing themselves of the many and important additions made to this branch of Comparative Anatomy by judicious critiques, MM. F. Cuvier and Laurillard have succeeded in presenting a comprehensive view of the existing state of knowledge. We do not, however, propose to enter into any of the descriptive details, which are evidently more calculated for the guidance of the student in the cultivation of this delightful science, than for the pages of a review; the extended notice of the Nervous System, contained in the two preceding numbers of this Journal, would moreover render any additional notice misplaced.

We shall, for these reasons, merely state that, as the new edition of the Anatomie Comparée is now all but completed, one volume only remaining to be published, those of our readers, who are interested in these inquiries, will do well to procure this classical work of one of the most illustrious naturalists of modern times.

OUTLINES OF CHEMISTRY. By *William Gregory*, M.D., Professor of Chemistry in the University of Edinburgh, &c. 12mo. pp. 558. London, Taylor and Walton. 1845.

THESE Outlines will be a most useful text-book to the student, while attending a course of lectures on Chemistry. They contain an immense amount of information in as small a bulk as possible, and the high character of the Professor will be a sufficient voucher for its general accuracy—as far, at least, as accuracy can be looked for in the details of a science, which "is, at present, not only in a state of rapid development and progress, but in a state of transition." Every year is adding not only a host of new facts, but suggesting also a multitude of new views, in Chemistry. The great difficulty, which the general reader must experience when keeping up with the progress of this most interesting branch of knowledge, is the enormous multiplication of new terms.* One advantage indeed of this must be to force the student to have frequent recourse to his Greek and Latin Lexicons. We may mention that Dr. Gregory has entirely excluded from these Outlines any description of what are usually called the "Imponderables"—Light, Heat, Electricity, and Magnetism:—regarding them to belong to the domain rather of Physics than of Chemistry. The first part, occupying 236 pages is devoted to the consideration of *inorganic*, and the second part, which contains upwards of 300 pages, to that of *organic* substances. As a matter of course, all the most recent hypotheses as to the constitution of Acids and Salts, the existence of organic radicals, and so forth, are minutely described and canvassed. The parts may be purchased separately.

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* Dr. Prout, after enumerating the following "extraordinary names"—*Allantoin, Cyanuric Acid, Cyanelid, Alloxanic acid, Mesoxalic acid, Mykomelinic acid, Parabanic acid, Uramil*, &c.—of various alleged products of urea and uric acid, says: "I must protest against the barbarism of the terms; particularly as I am by no means satisfied that the doctrines, on which they are founded, are satisfactorily established."

AN ESSAY ON THE USE OF NARCOTICS, AND OTHER REMEDIAL AGENTS, CALCULATED TO PRODUCE SLEEP, IN THE TREATMENT OF INSANITY. By *Joseph Williams*, M.D. Pp. 120. London, Churchill. 1845.

THIS Essay presents a succinct and very neat exposition of the various remedies that have been recommended for the purpose of soothing the excessive irritability and sleeplessness in the different forms of Insanity. Bleeding—purgatives—emetics—narcotics—the warm-bath, &c., are severally discussed, and the value of each is very fairly and judiciously stated. On the much vexed question as to the exhibition of opium in Insanity, Dr. Williams shews his good sense by distinguishing the cases where it is advisable, from those where its use is questionable, if not positively injurious. He has omitted to allude to one indication for its employment, which we regard to be of decided practical value, and to which we would therefore invite his attention, and that of our readers generally. This is the state of the urine. Whenever this secretion is high-coloured and scanty, let opium be eschewed in every form, until the bowels and kidneys, at least, have been freely relieved; should the symptoms not call for more active depletion, by the abstraction of blood. Even when the urine is less decidedly affected, the combination of alkaline salts with sedatives will often be found most beneficial. The more we see of practice, the more importance we are inclined to attach to the frequent examination of the renal excretion, more especially in cases of nervous disturbance.

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1. Elements of Materia Medica and Therapeutics. By EDWARD BALLARD, M.D., Lond., & ALFRED BARING GARROD, M.D., Lond. Octavo, pp. 487. London, 1845.

2. A Practical Treatise on Healthy Skin, with Rules for the Medical and Domestic Treatment of Cutaneous Diseases. By ERASMUS WILSON, F.R.S. Small 8vo, pp. 380. London, 1845.

3. The Modern Treatment of Syphilitic Diseases, both primary and secondary, including numerous Formulæ for the Preparation and Mode of Administration of the New Remedies. By LANGSTON PARKER. Second Edition. Small 8vo, pp. 240. London, 1845.

In our next.

4. First Steps to Anatomy. By JAMES DRUMMOND, M.D., Professor of Anatomy and Physiology in the Belfast Institution. 12mo, plates, pp. 201. London, 1845.

5. On the Analysis of the Blood and Urine in Health and Disease, and on the Treatment of Urinary Diseases. By G. OWEN REES, M.D., F.R.S., &c. Second Edition. 8vo. pp. 228. London, 1845.

6. A system of Surgery. By J. M. CHELIUS. Translated by J. F. SOUTH, Parts 6, 7, and 8.

7. Medico-Chirurgical Transactions, published by the Royal Medical and Chirurgical Society of London. Second Series Vol X. Pp. 675. London, 1845.

8. Illustrations of Modern Mesmerism from Personal Investigation. By JOHN FORBES, M.D., F.R.S. 18mo. pp. 113. London, 1845.

9. The Potatoe Disease, its Origin, Nature, and Prevention; with a Chemical and Microscopical Analysis of the sound and diseased Tubers. By G. PHILLIPS, of the Excise, and Member of the London Chemical Society. 12mo, plates, pp. 58. London, 1845.

Contains a good deal of very useful and curious information on a subject which attracts much notice at present.

10. Recherches de Pathologie Comparée. Par CH. F. HEUSINGER. Three Parts. 4to. Cassel, 1844.

11. Guy's Hospital Reports. Part III. October, 1845. S. Highley, Fleet Street.

12. The American Journal and Library of Dental Science. June, 1845. Edited by C. A. HARRIS, M.D., E. MAYNARD, M.D., and A. WESTCOTT, M.D. Baltimore.

13. Report of the Medical Officers of the Lunatic Asylum for the County of Lancaster. Lancaster, 1841, 1845.

14. The Descriptive and Physiological Anatomy of the Brain, Spinal Cord, and Ganglions, and of their Coverings; adapted for the use of Students By ROBERT BENTLY TODD, M.D. Post 8vo. pp. 284. London, 1845.

15. An Essay on the Use of Narcotics and other Remedial Agents, calculated to produce Sleep, in the Treatment of Insanity; for which the Author obtained the Lord Chancellor's Prize in Ireland. By JOSEPH WILLIAMS, M.D. Post 8vo., pp. 120. London, 1845.

16. A Clinical Introduction to the Practice of Auscultation and other Modes of Physical Diagnosis, intended to simplify the Study of the Diseases of the Lungs and Heart. By H. M. HUGHES, M.D. 12mo, pp. 246. London, 1845.

17. An Inaugural Address, delivered at the Opening of the Norfolk and Norwich Hospital Museum, Sept. 10, 1845.

18. De Lithiasi Vesicæ Urinariæ in Genere, et in Specie, de extractione Calculi per Sectionem Perinæi, Dissertatio Medico-Chirurgica quam annuente Amplissimo Medicorum ordine in Universitate Caesarea Mosquensi pro gradu Doctoris Medicinæ et Chirurgiæ, BASILIUS BASSARD. 4to, nine plates. Mosquæ, 1841.

19. Lectures on Natural and Difficult Parturition. By EDWARD WM. MURPHY, A.M., M.D., Professor of Midwifery, University College, London. 8vo, pp. 275.

In our next.

20. An Address by the Society of Apothecaries to the General Practitioners of England and Wales, on the Second Report of the Joint Deputation of the Society of Apothecaries, and the National Association of General Practitioners. 8vo. pp. 28. S. Highley, London.

21. The Buffalo Medical Journal. Edited by AUSTIN FLINT, M.D. Nos. 1 to 6, June to November. Buffalo.

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23. *Explanations*, a Sequel to Vestiges of the Natural History of the Creation. By the Author of that Work. Small 8vo, pp. 198. London, 1845.

24. A Supplement to the History of British Birds. By WILLIAM YARRELL, F.L.S., &c. 8vo, pp. 53. London, 1845.

25. Observations on the Nosological Arrangement of the Bengal Medical Returns, with Cursory Remarks on Medical Topography and Military Hygiene. By FRED. J. MONAT, M.D., &c. Calcutta, 1845. 8vo, pp. 64.

26. A Memoir on Amputation of the Thigh at the Hip-Joint, with a successful Case. By WM. SANDS COX, F.R.S., &c.

27. On Scarlatina, and its successful Treatment, by the Acidum Aceticum Dilutum of the Pharmacopœia. By J. B. BROWN. Small 8vo. pp. 66. London, 1845.

28. An Act (8 & 9 Vict., c. 100) for the Regulation of the care and Treatment of Lunatics. With Explanatory Notes and comments, &c. By FORBES WINSLOW, M.D. Small 8vo, pp. 173. London, 1845.

Most useful alike to the legal and medical profession.

29. The Veterinarian. Nos. for October, November, and December.

30. An Address at the Opening of the Classes of the Medical School attached to the Middlesex Hospital, Oct. 1845. By ALEXANDER SHAW, Esq.

A remarkably well-written Address; the illustrations are good, and the language terse and most expressive.

THE

MEDICO-CHIRURGICAL REVIEW.

APRIL, 1846.

ODONTOGRAPHY; OR, A TREATISE ON THE COMPARATIVE ANATOMY OF THE TEETH; THEIR PHYSIOLOGICAL RELATIONS, MODE OF DEVELOPMENT, AND MICROSCOPIC STRUCTURE, IN THE VERTEBRATE ANIMALS. By *Richard Owen*, F.R.S., Hunterian Professor to the Royal College of Surgeons of England, &c. 2 vols. large octavo, pp. lxxiv., 655. Plates 150. Bailliere, 1840–45.

IN the midst of the host of compilations, and worse than compilations, that have of late crowded the shelves of our bibliopoles, and swelled their periodical catalogues, it is satisfactory to be able to rest upon a work, founded upon sterling observation, and full of the results of great labour, animated by genius and talent. The science of physiology must be taught by monographs. It is, indeed, useful to the tyro to be furnished with those compiled manuals which profess to treat of all the systems of the body in an octavo volume, and do physiology in little—in which the digestive function is fully developed in a short chapter, and twenty pages suffice for the discussion of the whole subject of generation. The young student who seeks only for a text-book by which to guide his initiatory studies may be aided by such means in finding what he has to achieve: the map lies before him, and the main road is pretty distinctly indicated. But it is only in elaborate monographs like that before us that the details of a science can be developed, and any satisfactory acquaintance obtained with its generalities. We have been led to these observations by the character of the extraordinary book which forms the subject of the present article. Its entireness, so to speak, the extent and range of its object, and the completeness of its execution; the great variety of its illustrations, the close observation exhibited in the detail of the facts, the philosophical grandeur of the conclusions deduced from them, and, though last, scarcely least, the profuse number and beauty of the engravings with which the whole subject is illustrated, combine to render this one of the most remarkable works of its day.

In endeavouring to make our readers in some measure acquainted with the scope and objects of this magnificent book, it is not our intention to enter with any polemical spirit into the questions, still controverted, which are discussed in its pages. That there are some theories which appear to us to be scarcely sufficiently supported by the facts and observations de-

tailed, to warrant their being taken as proved, and others which are defended in a tone which the distinguished author might well afford to have modified and softened, takes nought from the real and intrinsic importance of the bulk of the work; and it will be our task rather to introduce it to our readers, in the hope of inducing them to form a personal acquaintance with the whole of its contents, than to debate the *vexatæ questiones*, some of which occur, in limine, on opening the introductory portion of the book.

The scope of the work is co-extensive with the subject itself; and a glance at its plan is sufficient to show that it must become an essential text-book to the physiologist, to the formal zoologist and to the palæontologist; all of whom are equally interested in its details.

The general structure of the teeth, and the history of their physiology, and the steps by which we have arrived at our present knowledge of their structure, is contained in the Introduction, which extends to upwards of seventy pages, and which may be considered as constituting the more theoretical portion of the work.

The text embraces the most accurate and elaborate descriptions of the number, classification, and uses, as well as of the intimate structure of the teeth of every group of vertebrate animals possessing these organs. It is to Professor Owen that we are thus indebted for the means, most especially important to the palæontologist, of ascertaining by the microscopic structure of the teeth, the true relations of those organic remains which are frequently only fragmentary, and of which, even where the osteology is found in tolerable completeness, the physical characters of the bones are so anomalous, that it is difficult to determine their affinities with known groups: a principle so important as worthily to rank by the side of that by which the genius of Cuvier first appreciated the relations of the different elements of comparative osteology, and by a bone or the fragment of a bone, seized upon the essential characters of the totality of the extinct animal's organization, and brought up before the mental vision of modern philosophers, the forms of the inhabitants of an ancient world.

The discoveries of many of the earlier physiologists have been sadly overlooked; and it is only of late that a disposition has been manifested of awarding to them their due meed of praise and acknowledgment for what they have really effected. Not a few of the most vaunted discoveries of modern times have been more than glimpsed at by the laborious investigators of past days; and although it would be unfair to suppose that the absence, in many cases, of all reference to their anticipatory discoveries, and of all acknowledgment of their merit, has arisen from any other cause than ignorance of their true claims, yet it would surely be worth a little examination, and the expense of some time and trouble to ascertain, before the enunciation of a presumed discovery, how far it may have been anticipated in past times, were it merely from a sense of justice and a desire of awarding to every one the "suum cuique."

In scarcely any portion of physiological investigation has this ignorance of the discoveries of our predecessors been more remarkable than in the structure of the teeth. From Hunter downwards we have various descriptions of the physical characters of these organs; they are stated by one to be of a bony structure, by another one portion of a tooth is described

as organized bone, and another as unorganized enamel,—their "conchoidal fracture," their extreme density, their laminated structure as exhibited in partial calcination, are all described with correctness and accuracy. At length, their true structure is discovered by means of the microscope;—and the "calcigerous tubules" and the fibrous intertubular substance, and the fine enamel fibres, and the intertubular cells, and other points exhibited by their microscopical examination, are all described as new discoveries—and that in perfect good faith—without once recollecting that the essential elements of these structures were suggested by Malpighi, and confirmed by Leeuwenhoek, ages before the modern discoverers were born. It is remarkable that a sufficiently accurate representation and description of the "dentinal tubes," were given by Leeuwenhoek, and that, too, in the Transactions of our own Royal Society, as long ago as 1678; and there it appears to have rested in concealment, within the walls of millboard that covered the venerable volume, unsuspected by the Hunters and Blakes, and their successors; and that even whilst Purkinjé was conceiving and carrying out his admirable investigations, and rediscovering the true structure of the teeth with all the means and appliances derived from the superiority of modern instruments, and the advantage of modern science, he was unconscious that one of the most interesting and important of his discoveries had been anticipated by about a century and a half. It is true that Portal formed a remarkable exception to the general ignorance of these early discoverers; and it is the more surprising that such ignorance should have continued, when we find, in the "Histoire de l'Anatomie et de la Chirurgie" of this learned and eminent author, the following passage in reference to the paper in question, and which is quoted by our author.—"Les dents sont composées de très petits tuyaux transparents et droits, dont six ou sept cents égalent à peine, un poil de la barbe." And it is still more remarkable that, notwithstanding the extent of Purkinjé's researches, and the zeal with which he followed them out for a considerable period, it was left to Retzius to direct "the attention of anatomists to Leeuwenhoek's discovery of the structure of Dentine."

The account which the author gives of the intimate structure of the teeth according to our present knowledge of it, is so succinct and comprehensive, that we prefer giving this introductory statement in his own words:—

"True teeth consist of two or more tissues, characterized by the proportions of their earthy and animal constituents, and by the size, form and direction of the cavities in the animal basis which contain the earth, the fluid or the vascular pulp.

"The tissue, which forms the chief part or body of the tooth, has, hitherto, received no distinct and specific name in our language; a particular modification of it, which characterizes the tusks of the elephant, is called 'ivory.' Some Anatomists have extended the application of this term to the analogous substance in all teeth; others have treated of it under the name of the 'bone of the tooth' or 'tooth-bone;' by the German Anatomists it is termed 'knochensubstanz,' 'zahnbein' and 'zahnsubstanz;' and some of the latest and most close-thinking writers on dental anatomy have preferred the literal translation of one or other of these terms to the use of the word 'ivory,' which unavoidably recalls the idea of the peculiar modification of the 'tooth-substance' in the elephant's tusk, to

which it is restricted in common language and in the best zoological works."* I propose to call the substance which forms the main part of all teeth 'dentine.'†

"The second tissue, which is the most exterior in situation, is the 'cement.'‡

"The third tissue, which, when present, is situated between the dentine and cement, is the 'enamel'§

"'Dentine' consists of an organized animal basis disposed in the form of extremely minute tubes and cells, and of earthy particles: these particles have a two-fold arrangement, being either blended with the annual matter of the interspaces and parietes of the tubes and cells, or contained in a minutely and irregularly granular state in their cavities.

"The density of the dentine arises principally from the proportion of earth in the first of these states of combination; the tubes and cells contain, besides the granular earth, a colourless fluid, probably transuded 'plasma' or 'liquor sanguinis,' and thus relate not only to the mechanical conditions of the tooth, but to the nutrition of the dentine.

"Dentine, thus organized, is 'unvascular:' the teeth of most mammals and reptiles, and of a few fishes, present this modification of their main constituent. But the dentine in the teeth of most fishes, of a few mammals, and of still fewer reptiles, is traversed by canals containing blood vessels or a vascular pulp; the tooth-substance, thus modified, I term 'vascular dentine.' Both the 'vascular' and 'unvascular dentine' may be present in the same tooth, as in those of the sloth, the walrus, and the cachalot; the transition from the vascular dentine to true bone is gradual and close.

"'Cement' always closely corresponds in texture with the osseous tissue of the same animal, and wherever it occurs of sufficient thickness, as upon the teeth of the horse, sloth, or ruminants, it is also traversed, like bone, by vascular canals. In reptiles and mammals, in which the animal basis of the bones of the skeleton is excavated by minute radiated cells, forming with their contents the 'corpuscles of Purkinjé,' these are likewise present, of similar size and form, in the 'cement,' and are its chief characteristic as a constituent of the tooth. The hardening material of cement is partly segregated and combined with the parietes of radiated cells and canals, and is partly contained in aggregated grains in the cells, which are thus rendered opake.

"The relative density of the dentine and cement varies according to the proportion of the earthy material, and chiefly of that part which is combined with the animal matter in the walls of the cavities, as compared with the size and number of the cavities themselves. In the complex grinders of the elephant, the masqued boar and capibara, the cement, which forms nearly half the mass of the tooth, wears down sooner than the dentine.

"The 'enamel' is the hardest constituent of a tooth, and consequently the hardest of animal tissues; but it consists, like the other dental substances, of

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* "The accurate Illiger distinguishes the 'substantia ossea' of a tooth from 'ebur,' and separately defines both these modifications of the tooth-substance. *Prodromus Systematis Mammalium*, 8vo. 1811, p. 20."

† "*Dentinum.*—Besides the advantage of a substantive name for an unquestionably distinct tissue under all its modifications in the animal kingdom, the term 'dentine' may be inflected adjectively, and the properties of this tissue be described without the necessity of periphrasis; thus we may speak of the 'dentinal' pulp, 'dentinal' tubes or cells, as distinct from the corresponding properties of the other constituents of a tooth. The term 'dental' will retain its ordinary sense, as relating to the entire tooth or system of teeth."

‡ "*Cæmentum, Cortex osseus*, Tenon. *Crusta petrosa*, Blake."

§ "*Encaustum, Adamas, Substantia vitrea.*"

earthly matter arranged by organic forces in an animal matrix. Here, however, the earth is mainly contained in the canals of the animal membrane, and, in mammals and reptiles, completely fills those canals, which are comparatively wide, whilst their parietes are of extreme tenuity. The hardening salts of the enamel are not only present in far greater proportion than in the other dental tissues, but, in some animals, are peculiarly distinguished by the presence of fluate of lime." P. v.

This passage may be considered as the *argument* or analysis of the whole of the physiology contained in the Introduction, but there are details in this part of the work which demand a more extended notice.

It is certainly to the labours, and we may almost add the genius, of Purkinjé, that we owe the knowledge of all the essential points in the anatomy of the teeth. But it is also very remarkable that, whilst this distinguished observer arrived at all his important conclusions from original researches of his own, ignorant, as we have before stated, that in some of the most considerable, he had been anticipated by Leeuwenhoek—at the same period, or immediately afterwards, certain of his discoveries were also independently made by Retzius, who was equally unacquainted with Purkinjé's labours; and this was not all, for this remarkable race, in which the competitors were really ignorant of each others' advances in the course, is completed by our author, who made many observations of the same nature, and exhibited them in his lectures at the College of Surgeons, without being aware that the distinguished men above-named had already anticipated him.

"Thus, the discovery by microscopical examinations that the dentine of the teeth in man and various animals was traversed by minute tubes disposed in a radiated arrangement in lines proceeding every where perpendicularly from the surface of the cavity containing the pulp, may be regarded as established, and to be due principally to the learned and ingenious Purkinjé, who, however, was all the while unconscious that he had been anticipated, as to the main fact, a long time before, by Leeuwenhoek.

"But the tubular structure of ivory is not the only important fact in dental anatomy, made known in the Breslau Theses of 1835. Purkinjé also discovered that the distinct layer of substance, previously known to surround the fang of the simple teeth of man and many mammalia, contained corpuscles like those which characterize the structure of true bone: and he observed in one instance that this bone-like substance was continued upon the enamel of the crown of a human incisor.

"This fact I have confirmed as regards the human teeth and the simple teeth of many mammals and reptiles. The layer of coronal cement varies in thickness; its tenuity is extreme in the teeth of man and the quadrumana.

"Purkinjé also found that the third substance, *crusta petrosa*, or cement of compound teeth, as those of the horse and ox, was in like manner characterized by the presence of numerous bone-corpuscles or cells; and thus proved that the difference between the so called simple and compound teeth depended, not on the presence of a third and additional substance in the latter, but on its greater abundance and different disposition in the tooth.

"At the time that these observations were being made at Breslau and Berlin, it appears that similar investigations had been set on foot at Stockholm. Professor Retzius of the University in that city informs us that he had been led by the irridescence of the fractured surface of the substance of a tooth to conceive that that appearance was due, as in the crystalline lens, to a fine fibrous structure, and that he communicated his opinions as to the regular arrangement of these

fibres to some of his colleagues in 1834; and that the University having obtained, in the summer of 1835, a powerful microscope, by Plesal of Vienna, he commenced a series of more exact researches on the intimate structure of the teeth in man and the lower animals. He operated on thin sections of teeth, both before and after the removal of the earthy matter, by means of acid, and attentively examined the fractured and polished surfaces of the ivory part; he determined the exact arrangement, course, and size of the tubuli in the teeth of different animals, and detected the finer ramifications given off by the tubuli during their divergence,* and the anastomoses of their finest terminal branches with the cells in the intertubular, or as it is sometimes termed interfibrous, tissue.

"Retzius also claims to have discovered the radiated or Purkinjian corpuscles† in the dentine; and to have thus succeeded in displaying a far greater identity between tooth-bone and proper bone than had been before anticipated.

"He exhibited the preparations and drawings illustrative of these interesting observations to Berzelius, Urede, and Professor Wahlberg at the latter end of 1835; being then unacquainted with the discoveries of Purkinjé; and communicated his researches to the Royal Academy of Sciences at Stockholm on the 13th of January, 1836. They were published in the same year in those Transactions and in the following year as a distinct treatise.

"At the early part of that year, 1837, I received from Mr. Darwin many fragments of the teeth of the extinct *Megatherium*, *Megalonyx*, *Mylodon* and *Toxodon*, collected during his travels in South America. Some of these fragments were in a state of incipient decomposition: and my attention was forcibly arrested by the fact that these fragments, instead of being resolved, like the fossil tusks of the mammoth and mastodon, into parallel superimposed conical lamellæ, separated into fine fibres, arranged at right angles to the plane of the layers which, according to the lamellar theory of dental structure, ought to have presented themselves to view. I exhibited the most characteristic of these specimens at my lectures on the teeth, at the Royal College of Surgeons, in May, 1837, and stated that 'the appearances which they presented were inexplicable on the lamellar hypothesis: but that I should investigate the subject further, and endeavour to elucidate the apparent anomaly before the following session.' At the conclusion of that course, I had sections of these fragments prepared for the microscope; and, stimulated by the amount of clearly defined and beautiful structure which they exhibited, I proceeded to examine similar sections of the human teeth and of those of many of the lower animals. The excitement of the research became heightened as the sphere of observation expanded, and I had collected extensive materials for a Treatise expressly on the Structure of Teeth, when the fourth number of Müller's Archiv für Physiologie, for the year 1837, containing an Analysis of Purkinjé's and Fraenkel's Treatise, came into my hands, in 1837, and awoke me from the dream of discovery in which I had been indulging. I received, shortly after, the fifth number of the same volume of Müller's

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* "Leeuwenhoek appears to have suspected the existence of such branches; he says, 'upon examining the tubuli round about this small cavity (the pulp-cavity) I perceive that they all arose from thence and spread themselves all round towards the circumference. I endeavoured to examine still farther, beyond the part where this cavity ended, in order to discover whether from these first-formed tubuli others might not arise or branch forth; but this part of nature's work was inscrutable to me.'" Hoole's Leeuwenhoek, 4to., p. 113.

† "I have not yet been able to detect the radiated cells or corpuscles in the dentine of the horse's tooth, in which they are described by Retzius; but they are very numerous and conspicuous at the peripheral portion of the dentine of the dugong's grinder, pl. 94."

Archiv, containing Dr. Creplin's German Translation of the Treatise of Retzius, upon the perusal of which I abandoned my intention of publishing those general observations on the structure of the teeth which I had before deemed to be new, but now found to have been mainly anticipated by Purkinjé and Retzius." P. xv.

The essential distinction between what Professor Owen terms "vascular" and "unvascular dentine," appears to us scarcely tenable. The passage from one into the other is almost continuous: at least there are such evident approaches on either side, as to warrant the conclusion that they are mere modifications of the same structure. The procession of the pulp-cavity, with its highly organised contents, in the form of vessels or tubes into the substance of the dentine, is probably the true theory of all the varieties of vascular dentine. The distinction, however, is of great importance in the determination of fossil animals; and here again we have a very valuable element in palæontological science from the researches of Professor Owen:—

"The prolongation or persistence of cylindrical canals of the pulp-cavity in the dentinal tissue, which is the essential character of vascular dentine, manifests itself under a variety of forms. In mammals and reptiles these canals, which I have termed 'medullary'* from their close analogy with the so called canals of bone, are straight and more or less parallel with each other; they bifurcate, though rarely; and when they anastomose, as in the megatherium, it is by a loop at, or near, the periphery of the vascular dentine. In the teeth of fishes, in which the distinction between the dentinal and osseous tissues is gradually effaced, the medullary canals of the vascular dentine, though in some instances straight and parallel and sparingly divided or united, yet are generally more or less bent, frequently and successively branched, and the subdivisions blended together in so many parts of the tooth as to form a rich reticulation. The calcigerous tubes sent off into the interspaces of the net work partake of the irregular character of the canals from which they spring, and the meshes fill with a mosslike plexus.

"Closely analogous to this modification of the vascular dentine, but differing in the presence of the radiated cells, is the tissue into which the residue of the pulp is converted in the teeth of certain reptiles, as the Iguanodon, Hylæosaurus and Ichthyosaurus, and of those of a few mammalia, as the Cachalot. This tissue approaches, in the combined presence of medullary canals and calcigerous cells, as closely to that of the skeleton of the species in which it occurs, as the reticulate modification of the vascular dentine in the teeth of fishes does to the osseous tissue of their skeleton. It has been uniformly described by the authors who have observed it, as Cuvier and Conybeare,† as the result of ossification of the pulp.

"If the first described modification of vascular dentine, which forms the chief part of the teeth of the Sloths and Megatherium, be regarded as a fourth dental tissue, this second modification of vascular dentine, from its closer resemblance to bone, might be reckoned as a fifth; in proportion, however, as it resembles bone, so likewise it approaches to the structure of cement." P. xviii.

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* "This substance was first characterised as a component of teeth, 'distinct from ivory, enamel, cement, and true bone, and is easily recognisable,' in my paper communicated to the British Association, in 1838; loc. cit., p. 123."

† "The teeth in these genera (the Lacerta) become completely solid, the internal cavity being filled up by the ossification of the pulpy substance." Trans. Geol. Soc., vol. vi., p. 166.

The substance which, in the so called compound teeth of graminivorous mammals, forms so large and important a constituent of their whole substance, and which, as regards these teeth, is, with much propriety, termed "cement," is found in almost all teeth, and probably may be considered as a necessary element in their structure. Existing, as it does, in the simple teeth only as a thin covering, scarcely perceptible on the surface of the enamel, and increasing in thickness over the root, the term "cement" is no longer applicable; and we could wish that some word more allusive to its essential situation, exterior to the other parts of the tooth, had been adopted. In its character it nearly resembles bone; and it is by its means that Hunter's well known experiments of uniting the teeth to the comb of a cock, and other curious transplantations, were brought to bear. It is, indeed, the most highly organised part of the teeth, and, as we have ourselves repeatedly verified, it is the seat of exostosis, of union of the roots of contiguous teeth, as well as of several diseased actions, which are not found to take place in any other of the dental constituents.

"This correspondence of the cement, which, when it exists in sufficient quantity, becomes almost identity with true bone, is illustrated by the varieties of microscopic structure which the cement presents in different classes of animals, and which always correspond with the modifications of the osseous tissue of the skeleton in those animals; thus the cement in the osseous fishes, in which the bone is not characterised by the radiated calcigerous cells, likewise ceases to present that character; and, in reptiles and mammals in which the radiated cells are present in the bone of the skeleton and in the dental cement there is a close conformity as to their size and shape in both tissues.

"The most remarkable modification of mammalian cement is presented by the thick layer of that substance which invests the molars of the extinct megatherium; besides abounding in calcigerous cells it is here traversed by straight, parallel and occasionally bifurcated medullary canals, arranged with regular intervals, and directed from the exterior of the tooth somewhat obliquely to the surface of the unvascular dentine, close to which they anastomose by loops, corresponding with, and opposite to those formed by the medullary canals of the vascular dentine of the same tooth.

"Under every modification the cement is the most highly organised and most vascular of the dental tissues, and its chief use is to form the bond of vital union between the denser and commonly unvascular constituents of the tooth and the bone in which the tooth is implanted. In a few reptiles (now extinct) and in the herbivorous mammalia the cement not only invests the exterior of the teeth, but penetrates their substance in vertical folds, varying in number, form, extent, thickness and degree of complexity, and contributing to maintain that inequality of the grinding surface of the tooth which is essential to its function as an instrument for the comminution of vegetable substances." P. xxi.

Passing over, as we gladly do, the controversial portion of the history of the development of the dentinal structure, we enter upon the theory of our author on the mode in which the three structures of which the teeth consist are developed. It appears that, notwithstanding the approximation which Purkinjé and Schwann made towards the true understanding of these curious processes, yet that much remains to be determined and elucidated on this subject. The main facts which may be considered as established by Purkinjé and Schwann, relative to the formation of dentine, and the changes which the dentinal-pulp undergoes during that process, are the following: the proper tissue of the pulp consists of minute nucleated

cells, with capillary vessels and nerves, invested by a dense structureless membrane, which disappears during the formation of the dentine. The superficial pulp-cells assume an elongated form; they correspond in diameter and direction with the tubes of the contiguous cap of dentine. These, or similar cells, are observed in a state of transition into dentine, in the interspaces between the pulp and the previously formed cap of dentine; they adhere to the latter when displaced from the pulp.

"The chief points that remain to be determined are the relation of the dentinal pulp to the transitional cells, between it and the dentine; the nature of the transition, and the relation of the cells to the dentinal tubes, and the intertubular tissue." P. xxxvii.

Such then was the state of our information on the formation of dentine, when Professor Owen took the matter up thoroughly to investigate it. Before, however, we proceed to give at some length, and in our author's own words, his account of the interesting process in question, it is but fair to state that the primâ-facie condition of the parts standing in relation to these organs, had given rise to a theory of their development, to which all previous authors had learned, and from a tendency to which it was difficult to emancipate the mind. The "excretion theory" was doubtless that of Hunter, and was supported by Blake, and more distinctly by Bell, who considers the "proper membrane of the pulp" as the secreting surface, the pulp being merely the mould on which the ivory is successively deposited. If the membrane alluded to be identical with the pre-formative membrane of Raschkow, as stated by Professor Owen, then it is certain that its office, as assigned by Bell, must be altogether assumed, or that the description of Raschkow of its existence *exterior* to the dentine substance must be erroneous. We believe, however, that further observations still are required, with regard to the office, the structure, and even the existence, of this membrane.

In now giving a full account of Professor Owen's investigations, which we do in his own words, because we find it very difficult to convey, in a condensed form, any adequate idea of their results,—we offer no apology for the length of our quotations, nor, on the other hand, for the omission of the lengthy, and not very agreeable, controversial notes, which, however they may be considered necessary for the purpose of settling an obstinate controversy, certainly do not contribute to the clear understanding of the author's views, nor to the interest or pleasure of the reader.

"The following are the progressive steps of the calcifying processes, according to my microscopic researches on the formation of the different substances which compose the more complex teeth of Reptiles and Mammals, pursued in various species of both classes, but chiefly in the higher organized domestic animals.

"Three formative organs are developed, as already described, for the three principal or normal dental tissues. The dentinal pulp, or pulp proper, for the dentine; the 'capsule' for the cement, and the 'enamel-pulp' for the enamel. The essential fundamental structure of each formative organ is cellular; but the cells differ in each organ, and derive their specific characters from the properties and metamorphoses of their nucleus, upon which the specific microscopical characters of the resulting calcified substances depend.

"In the cells of the dentinal pulp the nucleus fills the parent cell with progeny of nucleoli before the work of calcification begins: in the enamel-pulp

the nucleus of the cell disappears, like the cytoblast of the embryo plant in the formation of most vegetable tissues: in the cells of the capsule, the nucleus neither perishes nor propagates, but retains its individuality, and gives origin to the most characteristic feature of the cement, viz.:—the radiated cell.

"The primordial material of each constituent of the tooth-matrix is derived from the blood, and special arrangements of the blood-vessels pre-exist to the development and growth of the constituent substances. A pencil of capillaries is directed to a particular spot in the primitive dentiparous groove, and terminates there by a looped net-work, from which spot a group of nucleated cells begins to arise in the form of a papilla." P. xlii.

"The primary dentinal papilla and its capsule rapidly increase by successive additions of nucleated cells, apparently derived from material supplied by the capillary plexus at the base; the capillaries now begin to penetrate the substance of the pulp itself, where they present a sub-parallel or slightly diverging penicillate arrangement, but preserve their looped and reticulate termination near the apex of the pulp. Fine branches of nerves accompany the capillaries, and terminate also in loops." P. xliii.

"The primary cells and the capillary vessels and nerves are imbedded in, and supported by, a homogeneous, minutely sub-granular, mucilaginous substance, the 'blastema.' The cells which are smallest at the base of the pulp, and have large, simple, sub-granular nuclei, soon fall into linear series directed towards the periphery of the pulp: where the cells are in close proximity with that periphery, they become more closely aggregated, increase in size, and present the following changes in their interior. A pellucid point appears in the centre of the nucleus, which increases in size and becomes more opake around the central point, rendering the compressorium requisite for its demonstration. A division of the nucleus in the course of its long axis is next observed. In the larger and more elongated cells, still nearer the periphery of the pulp, a subdivision of the nuclei has taken place, and the subdivisions become elongated with their long axes vertical, or nearly so, to the plane of the pulp, and to the field of calcification. The subdivided and elongated nuclei become attached by their extremities to the corresponding nuclei of the cells in advance; and the attached extremities become confluent. Whilst these changes are proceeding, the calcareous salts of the surrounding plasma begin to be accumulated in the interior of the cells, and to be aggregated in a semi-transparent state around the central granular part of the elongated nuclei, which now present the character of secondary cells, and the salts occupy, in a still clearer and more compact state, the interspaces of such cells: the elongated granular matter of the terminally confluent secondary cells establishes the area of the tubes, by resisting, as it would seem, the encroachment of the calcareous salts; the nuclear tracts receiving a smaller proportion of the salts, in the condition of minute disgregated particles, which are usually arranged in a linear series of nodules, and contribute to cause the white colour of the moniliform area of the tube, when viewed by reflected light, and its opacity when viewed by transmitted light. Thus the primitive existence of the granular nuclei, their multiplication in the primary or parent cell, their elongated form, their serial arrangement end to end, and terminal confluence, are indicated in the calcified pulp by the area of the dentinal tubes; the interspaces of the metamorphosed nuclei being occupied by calcareous salts in a clearer and more compact state, with evidence, however, of a distinctness of the nucleolar membrane or secondary cell from the cavity of the common containing cell, which sustains the interpretation of the proper parietes of the dentinal tube. The indications of the primitive boundary or proper parietes of the parent-cell are in like manner more or less distinctly retained, through a modification of the arrangement of the calcareous salts in the boundaries and in the interspaces of the cells. The salts are sometimes blended with the blastema in these interspaces in a disgregated condition, which renders them almost as opake as the area of the tubes." P. xliv.

We regret that want of room prevents our extracting the remainder of the elaborate details of the formation of this principal constituent of the teeth, which will not, however, admit of condensation. The formation of the enamel is not less minutely described, but the following extract will suffice to show the general views entertained by the author:—

"The enamel pulp differs from the dentinal pulp at its first formation by the more fluid state of its blastema, and by the fewer and more minute cells which it contains. The source of this fluid blastema appears to be the free inner vascular surface of the capsule. As it approaches the dentinal pulp the blastema acquires more consistence by an increased number of its granules, and it contains more numerous and larger cells; many of these show a nuclear spot; others a nucleus and nucleolus; the spherical nucleolar cells in the part of the blastema further from the capsule are so numerous as to form an aggregate mass, with a small quantity of the condensed blastema in the minute interspaces left between the cells, which are pressed together into hexagonal or polygonal forms. In this state they constitute a great part of the enamel pulp, which is of considerable extent in the complex molar teeth of the Ruminants. The appearance produced by these aggregated cells, in a section of the tooth matrix of a calf's molar, is compared by Raschkow to the actinenchyma of certain vegetable tissues, and the connecting condensed blastema to threads of cellular tissue. The field of the final metamorphosis of the cells into the moulds for the reception of the solidifying salts is confined to close contiguity with the surface of the dentinal pulp.

"Here the cells increase in length, lose all trace of their nucleus, and become converted into long and slender cylinders usually pointed at both ends, and pressed by mutual contact into a prismatic form. These cylinders have the property of imbibing the calcareous salts of the enamel from the plasmatic fluid, and of compacting them in a clear and almost crystalline state in the interior: the disappearance of the nucleus being evidently the condition of the absence of any permanent cavity, cell, canal, or other modification of the mineral matter, at least in the enamel fibres of the calf. In the human subject, it is probable that the cavity of the cylinder may be subdivided by a multiplication of delicate nucleoli into compartments: or that the remains of such multiplied nucleoli may cause a modification of the walls of the cylinder, and so produce the characteristic transverse striæ of the enamel-fibre. This appearance is not present in the enamel of the frog's tooth, nor in that of the teeth of the hog, or calf, in which animals my observations of the development of this tissue have been chiefly made. As the development proceeds, the cells in immediate contiguity with the calcified prisms undergo the same changes as their predecessors, and become united to them by their peripheral pointed extremities, whilst the fluid plasmatic contents of the cells are exchanged for the dense salts of which the enamel is chiefly composed. The selective surface formed by the organic membrane of the cell would seem to be destroyed by the very pressure resulting from its own action, and exerted by the contents of the closely-packed contiguous prisms, when the cavities of the cells are completely filled. The membrane ceases at least to be distinguishable under the microscope, from the solid contents of the cell, except at that surface of the enamel next the capsule, and which is still in progress of growth." P. lix.

The remaining structure of which the development is to be described, is the "cement," which is produced by the sac or capsule, the most external of the rudiments or formative structures of these organs.

"The blastema or fundamental tissue of the capsule is, at first, semi-transparent and of a pearly or opaline colour; but is soon richly ornamented by the plexiform distribution of the blood-vessels. As the period of its calcification approaches,

which is later than that of the dentinal pulp, it becomes denser, and exhibits numerous nucleated cells. The blastema itself presents more evidently a fine cellular or granular structure in which the calcareous salts are impacted in a comparatively clear state constituting the framework of the cemental tissue. The characteristic features of this tissue are due to the action of the proper nucleated cells upon the salts of the plasma diffused through the blastema in which those cells are imbedded. The cells being characterised by a single large granular nucleus which almost fills the clear area of the cell itself. If, when the formation of the cement has begun in the incisor or molar of a colt, one of the detached specks of that substance, with the surrounding and adhering part of the inner surface of the capsule in which it is imbedded, be examined, these nucleated cells are seen, closely aggregated around the calcified part, in concentric rows; the cells of which are further apart as the rows recede from the field of calcification. Those next the cement rest in cup-shaped cavities in the peripery of the calcified part, just as the first calcified cells of the thick cement which covers the crown of a complex molar are lodged in cavities on the exterior of the enamel. These exterior cavities of the cement are formed by centrifugal extension of the calcifying process in the blastema in which the cells are imbedded. The calcareous salts penetrate in a clearer and more compact state the cavity of the cell, but their progress is arrested apparently by the nucleus which maintains an irregular area, partly occupied by the salts in a sub-granular opake condition, but chiefly concerned in the reception and transit of the plasmatic fluid which enters and escapes by the minute tubes which are subsequently developed from the nucleolar cavity as calcification proceeds. The radiated cells or cavities thus formed, are the most common characteristic of the cement, but not the constant one. The layer of the capsule which surrounds the crown of the human teeth and of the simple teeth of quadrumana and carnivora, consists simply of the granular blastema, without nucleated cells, and the radiated corpuscles are, consequently, not developed in the cement which results from its calcification. In the thicker parts of the inflected folds of the capsule of the complex teeth of the herbivora traces of the vascularity of that part of the matrix are persistent, the blastema calcifying around certain of the capillaries, and forming the medullary canals. The varieties of these canals are traversed by minute tubules continued from or communicating with the radiated cells. These tubules, and the more parallel ones which traverse the thickness of the cement in many mammalia, are the remains of linear series of the minute granules of the blastema.

"In the deep sockets of the teeth of persistent growth the matrix is maintained by the constant additions of new blastema, and cell-material to the bases of the dentinal, enamel, and cemental pulps." P. lxi.

It is worthy of particular observation here, that on reverting to the works of former authors on the anatomy of the teeth, of those whose labours were antecedent to the period of the revival of microscopy, the Hunters and Blakes, and their followers, we find all the above-mentioned formative structures described with more or less accuracy, and assigning to each its true and appropriate office. It is no new discovery that the pulp forms the matrix of the dentine, that the enamel owes its origin to one portion of the capsule and the cement to another. The dentinal pulp is described by Hunter as "a pulpy substance which is pretty firm in its texture, transparent excepting at the surface where it adheres to the jaw." "These pulpy substances are very vascular."* The beginning of ossification is by one point or more, according to the kind of tooth. * * The

* Hunter on the Teeth, Bell's Ed., p. 38.

ossifications in their progress become thicker and thicker where they first began, but increase faster on the edges of the teeth. * * * It gradually surrounds the pulp, till the whole is covered by bone, except the under surface; and while the ossifications advance, that part of the pulp which is covered by bone *is always more vascular than the part which is not yet covered.* The adhesion of the pulp to the new-formed tooth or bone is very slight, for it can always be separated from it *without any apparent violence*, nor are there any vessels going from the one to the other."

Blake gives nearly a parallel description of the structures in question. He considers, however, that the pulp is derived from "the vessels which enter the lower part of the sacs" or capsules. He states that the pulp is very vascular; and adds that, "as the bone of the tooth increases in thickness, the pulp is proportionably diminished, and seems, as it were, converted into bone;" but he goes on to disprove this by observing that "its connection with the bony part is very slight, except at its extreme elastic edge. * * * When the shell is removed, the pulp appears covered with a very delicate membrane, on which the vessels form a network."* This is clearly the "proper membrane of the pulp, subsequently described by Bell as the secreting organ of the ivory, and believed by Owen to be identical with the "performative membrane" of Raschkow.

The opinions promulgated by the author just named on this subject do not differ materially from those of his predecessors. His theory, however, is that the membrane just named, the "proper membrane of the pulp," is the true secreting organ of the ivory;† and in another place, in his edition of Hunter, he more fully declares that the pulp "constitutes only the mould upon which the ossification is formed, between which and the pulp is placed a membrane of extreme tenuity, * * * slightly attached to the surface of the pulp, which it completely covers; and it is from the outer surface of this membrane that the bone (ivory) is secreted."‡

So also with regard to the capsule, to which the office of forming the cement is assigned by Owen, and the enamel-pulp situated on its inner surface, the authors just named have all described one or both of these parts, and assigned to them corresponding offices. Hunter has the following statement, remarkable for its accuracy. "There is another pulpy substance opposite to that which we have described: *it adheres to the inside of the capsule*, where the gum is joined to it, and its opposite surface lies in contact with the basis of the above-described pulp, and afterwards with the new-formed basis of the tooth. It is thinner than the other pulp, and decreases in proportion as the teeth advance. It does not seem to be very vascular. * * * The enamel appears to be secreted from the pulp above described, and perhaps from the capsule which encloses the body of the tooth."‖ He proceeds to conclude, that both these parts,

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* Blake, "Essay on the Structure and Formation of the Teeth," &c., p. 5, *et seq.*

† Bell on the Teeth, p. 54.

‡ Bell in Hunter on the Teeth, p. 38.

‖ Hunter. *L. c.*, p. 41.

the capsule and the enamel pulp, are concerned in the production of the enamel in man, because it "seems evident" that they are in granivorous quadrupeds. The mode in which the final crystalline form of this substance is accounted for is worthy of notice. "It is a calcareous earth, thrown out from these parts, which act here as a gland. After it is secreted, the earth is attracted by the bony part of the tooth which is already formed, and upon that surface it crystallizes. The operation is similar to the formation of the shell of the egg, of the stone in the kidneys or bladder, and the gall-stone." Of the formation of cement Hunter gives no account.

Blake was the first author by whom the true relation of the cement to the tooth in the graminivorous quadrupeds was understood, but he appears somewhat confused in his description of the mode of its production. Of the enamel, or, as he terms it, "*cortex striatus*," he states that it is deposited by the inner surface of the *sac* or capsule. "The sacs or membranes which surround the cells * * * can easily be separated into two lamellæ, the external of which is spongy and full of vessels. The internal one is more tender and delicate, and seems to contain no vessels capable of conveying red blood." Hunter, on the other hand, declares that the external layer is "soft and spongy, without any vessels; the other is much firmer, and extremely vascular." Fox declares, and Bell agrees with him, that both are vascular! The account which Blake gives of the office of the capsule is so near the truth, and so anticipatory of the present theories, that, in justice to him, we think it right to give it in his own words. "It appears that the internal part of the membranes [enamel-pulp?] secretes the earthy matter of the *cortex striatus* [enamel,] and that, as soon as it has performed its function, it is wasted or destroyed; for its external lamella, as soon as the upper part of the *cortex striatus* is crystallized, begins to deposit on its surface a substance differing from either the bony part or the cortex striatus, being harder and more brittle than the former, but less so than the latter."* It appears to us that this statement comes as near the truth as it was possible, for one who had not the advantage of microscopical examination to aid him.

There are a few remarkable discrepancies which cannot but strike us on comparing the statements of the older authors whom we have just quoted with the theories enunciated by the supporters of the doctrine of the *conversion* of the dentinal pulp into dentine, and of the enamel pulp into enamel. The first and most obvious is the asserted existence of an enduring vascular membrane covering the surface of the pulp, and interposed between it and the progressing dentine. The pulp is declared by Blake to be covered with a very delicate membrane, on which the vessels form a "net-work," and even goes so far as to consider it as "a propagation of the periosteum of the jaw." Bell, as we have seen, is still more particular on this point. Connected immediately with this assertion, is the statement made by all three of the authors above quoted, that the shell of ivory is so easily detached from the surface of the pulp, as scarcely to offer any perceptible resistance. Hunter's assertion, that there are no

* Blake. *L. c.*, p. 84.

vessels going from the pulp to the shell of bone, must be considered as another mode of expressing this entire absence of any obvious connexion between the two parts. Now, if these assertions be true, we confess we are at a loss how to reconcile them to the gradual *conversion* of the substance of the pulp into the substance of the dentine, especially considering that the whole shell of dentine is hard, and the whole substance of the pulp still soft;—there appears to be no equal and continuous transition between the soft gelatinous texture of the pulp, and the solidity of the dentinal shell or cap. Again—the very distinct lamellar fracture or concentric separation of layers of dentine, produced by partial calcination, and still more remarkably by long inhumation, as in the case of fossil elephants' tusks, deserves much consideration when associated with the other facts above-mentioned. We do not make these remarks as throwing any doubt on the statements of Professor Owen, or of the other distinguished men who support a similar theory to his, but only in order to call attention to these discrepancies, and to express our feeling that they have been somewhat too slightly passed over in the present work.

We have thus endeavoured to give as complete a view of the introductory portion of this work as our limits would admit—and we have now to offer a sketch of the general arrangement of the principal objects of the book, and of the conclusions which are founded upon the mass of important details contained in it.

The general arrangement of the body of the work is as follows. Commencing with the fishes, we have the principal groups of "Cyclostomes," "Plagiostomes," "Gonoid fishes," "Ctenoid fishes," and "Cycloid fishes," with their different subordinate groups. The Batrachians are not treated as a distinct class from the Reptiles, but only as one of the primary groups of the class, and, including the interesting genus of *Labyrinthodon*, are exhibited under thirteen different forms: the Ophidians and the Saurians follow, the Enaliosaurians being included in the latter. The arrangement of the Mammals appears to be nearly arbitrary. After some observations on the horny teeth of the monotremes, the blubber whales, &c., the remainder are classed in the following series: Bruta, Cetacea, Marsupialia, Rodentia, Insectivora, Cheiroptera, Quadrumana, Bimana, Carnivora, and Ungulata, including "Isodactyle ungulates," "Anisodactyle ungulates," and "Proboscidians." The teeth in each of the principal groups are treated in full and admirable detail under the several heads of number, form, situation, attachment, substance, chemical composition, and development.

It would perhaps border upon hypercriticism to animadvert upon the inconsistencies of nomenclature, which are very obvious and very frequent. It may be answered that a work like this, the object of which is purely anatomical and physiological, needs not the same attention to accuracy and consistency in the subordinate matter of terminology, as if it belonged to a subject of systematic and formal zoology. We suppose the defence, and willingly accept it; and proceed to consider briefly the generalities of each principal division or group of animals.

It is of course with the full conviction of the truth of the "conversion theory" that the whole of the details of structure and development throughout the book are stated and followed out; and whatever may be the difficulties which meet us on a more superficial view, and to which we have

already adverted, the entire consonance of all our author's facts with this theory, and the impossibility of rendering many of those facts compatible with the "excretion theory," will, we doubt not, tend to establish the former firmly in the minds of all the attentive students of this book, until future observations may tend to modify, or (we hesitate to suppose such a thing even possible) to subvert it.

We pass over the elaborate and interesting details of the form and situation of the teeth in the various tribes of fishes, as they are matters which may be found more or less satisfactorily described in other places. We would merely observe that the *final cause* is, in all instances, admirably made out. A brief example, however, which meets us at the very commencement, we cannot help extracting, referring, at the same time, to the beautiful plate (46) which illustrates it.

"If the engineer would study the model of a dome of unusual strength, and so supported as to relieve from its pressure the floor of a vaulted chamber beneath, let him make a vertical section of one of the crushing pharyngeal teeth of the wrasse. The base of this tooth is slightly contracted, and is implanted in a shallow, circular cavity, the rounded margin of which is adapted to a circular groove in the contracted part of the base; the margin of the tooth, which immediately transmits the pressure of the bone, is strengthened by an inwardly projecting convex ridge. The masonry of this internal buttress and of the dome itself, is composed of hollow columns, every one of which is placed so as best to resist or transmit in the due direction, the superincumbent pressure." P. 9.

The substance of the teeth in certain fishes is more complex and more variable than in any other class.

"The greater number of fishes have their teeth composed of an osseous substance, somewhat denser than the jaws to which they are affixed. In some instances, as in the teeth of flying-fish (*Exocœtus*,) and sucking-fish (*Remora*,) the substance of the tooth is uniform, and not covered by a layer of a denser texture. In others, as the shark, sphyræna, &c., the tooth is coated with a dense, shining, enamel-like substance; but this is not true enamel, nor the product of a distinct organ; it differs from the body of the tooth only in the greater proportion of the earthy particles, their more minute diffusion through the gelatinous basis, and the more parallel arrangement of the calcigerous tubes; but it is developed in and by the same matrix, and, resulting from the calcification of its external layer, is the first part of the tooth which is formed. In the *Sargus* and *Balistes*, the dentine, or proper osseous substance of the tooth, is harder than that of the fishes last cited; and is covered with a thick layer of a denser substance, developed by a distinct organ, and differing from the enamel of the higher animals only in the more complicated and organized mode of deposition of the earthy particles. The ossification of the capsule of the matrix gives the enamel of the teeth of the file-fish, and some others, a thin coating of a third substance analogous to the 'cæmentum, or crusta petrosa,' of the mammalian teeth. And in the pharyngeal teeth of the parrot-fish, a fourth substance is added to the structure of the tooth by the coarser ossification of the pulp, after its peripheral portion has been converted into the dense ivory. The teeth, thus consisting of dentine, enamel, cement, and coarse bone, are the most complicated as regards their substance that have yet been discovered." P. 9.

With regard to the intimate structure of the teeth in this class, the author states that, there are

"At least four principal modifications of the tubular structure of the teeth of fishes. Premising that the essential character of this structure is a *cavitas pulpi*,

or medullary canal, from which the calcigerous tubes radiate, the first modification which may be noticed is where the tooth is traversed by a number of equidistant and parallel medullary canals, each canal and its system of medullary tubes representing a cylindrical or prismatic denticle, and being separated from the contiguous denticles by a thin coat of bone or cement. This modification is exemplified in the rostral teeth of the saw-fish (*Pristis*,) the tesselated teeth of the eagle-rays (*Myliobates*, *Zygobates*, *&c.*,) and the maxillary plates of the chimæroids. The dense dental case of the jaws of the parrot-fishes (*Scarus*,) may likewise be regarded as an extreme instance of this modification, and we shall find the same structure reappearing in some of the inferior genera of the mammiferous class. In the parrot-fishes, the denticles are quite distinct from one another, but in the saw-fish, chimæra, and eagle-rays, the contiguous medullary canals occasionally anastomose together. In the chimæroid fishes these anastomoses are more numerous, and the boundaries of the component denticles less distinct, so that they form a transition between the preceding, and what may be regarded as the second variety of the tubular structure.

"In this modification the substance of the tooth is traversed by medullary canals, somewhat less regularly equidistant and less parallel than in the first; having the boundaries of their respective systems of radiated calcigerous tubes indicated by the minute calcigerous cells, with which the terminal branches of those tubes communicate; these boundaries being more or less obscured by the terminal branches of the calcigerous tubes extending across into the interspaces of the corresponding branches of an adjoining system of tubes, and anastomosing with them immediately, or through intervening dilatations or cells. The medullary canals here dichotomize more frequently than in the first modification; their anastomoses are more numerous, and the whole tooth, which is generally of large size is consequently more individualized and compacted. The teeth of the Port-Jackson shark (*Cestracion Phillippi*,) afford a good example of this modification, which also prevails in those of the extinct genera *Ptychodus*, *Psammodus*, *Helodus*, *Ctenoptychius*, *&c.* In the teeth of the extinct *Acrodus*, the medullary canals, which likewise traverse in great numbers the body of the tooth, assume a more or less wavy course; and this disposition, combined with their numerous anastomoses, leads to the third modification, which at the same time is the most common and characteristic of the dental structure, in the class of fishes.

"In teeth manifesting this variety of tubular structure, the dentine is permeated by a network of medullary canals, of which the interspaces are occupied by the calcigerous tubes and cells. The medullary canals are directly continued from those of the common bone with which the base of the tooth is anchylosed, or into which it has been converted. As the medullary canals proceed through the tooth, they maintain a course more or less parallel, and more or less straight or wavy; but they ramify abundantly, and gradually diminish in calibre as they approach the surface of the tooth. The illustrations of this modification of the dental structure in the present work, are taken from the teeth of the extinct *Lamna*, *Dictyodus*, and *Saurocephalus*, and from those of the recent *Sphyræna* and *Acantharus*. In the latter genus the dendritic arrangement of the medullary tubes recognised by Mr. André, has subsequently been figured by V. Born. V. Born and Retzius have described a similar structure in the teeth of the wolf-fish (*Anarrhichas*,) of which Mr. Nasmyth has given a figure in his useful translation of some of the recent treatises on dental anatomy.

"The reticulate medullary tubes pervade the structure of the teeth of the perceoid, sciænoid, cottoid, and gobioid families of fishes; and of those of the *Capros*, *Naseus*, and other genera of the *Theuties* of Cuvier, besides the teeth of the *Acanthuri* already cited. A similar reticulate structure is common to the teeth of the *Chætodontes* and the *Pleuronectes:* in the cycloid fishes, we find it almost universal in the scomberoid, lucioid, salmonoid, and clupeoid families: it is exchanged for a higher type of structure in the maxillary teeth of the lophi-

and fishes, and in the pharyngeal teeth of the cyprinoids, but it again re-appears in the teeth of the blennioid, gadoid, and muræenoid families; and the same coarse bone-like structure pervades the dental plates of the supposed amphibious *Lepidosiren*.

"The higher type of structure just alluded to is that which characterises the teeth of most reptiles and mammalia. Here the dentine consists of a single medullary or pulp canal, and a single system of calcigerous tubes radiating from the central or sub-central canal, at right angles to the periphery of the tooth. The teeth of the extinct sauroid fishes and pycnodonts, the maxillary teeth of the existing file-fishes (*Balistes*,) and angler (*Lophius*,) the incisors, canines, and molars of the breams or sparoid fishes, the pharyngeal pavement-teeth of the wrasse-tribe (*Labridæ*,) the maxillary and pharyngeal denticles of the scari, and the lamelliform denticles of the crop-fishes, *diodon* and *tetrodon*, likewise the maxillary teeth of some of the genera of sharks and rays, afford examples of this structure." P. 13.

The following remarks on the changes from one of these modifications of dental structure to another are interesting and important, as exhibiting the conclusion to which a philosophical mind has been brought by an immense accumulation of facts, acutely reasoned upon, respecting the long debated question of the true organization and life of these organs; and they refute in a few words the hypothetical application of such terms as "la partie morte," unorganised structures, &c., which have been so often assigned to the solid substance of the teeth.

"The uniform result of my researches, on the structure of the teeth in all grades of vertebrate animals, and in their natural and diseased states, has been a conviction of the untruthfulness of the terms inert, dead, and unorganised as applied to the substance of any tooth whatever. Extra-vascular undoubtedly is all that portion which consists of the calcigerous tubes; the capillary circulation is confined to the pulp or medullary canals; but since every secretive process and the development of the primordial cells of every tissue are due to changes produced in the liquor sanguinis transuded from and beyond the sphere of the ultimate capillaries, the absence of these vessels in the dense dental substance is as little conclusive against its vital and organized nature, as it would be to prove the inert condition of the germinal membrane of the ovum before the thirtieth hour of incubation." P. 13.

Mr. Owen's theory of the development of the teeth in fishes, is in accordance with that of the osseous structures generally; that is to say, that although they are formed according to the general laws of dental development, "the process in many instances does not extend beyond the earlier and simpler stages observable in the higher classes of animals. In all fishes, as in other vertebrate animals, the first step is the production of a simple papilla from the free surface of either the soft external integument, as in the young *Pristis*,* or of the mucous membrane of the mouth, as in the rest of the class. In these primitive papillæ there can be very early

* "A very close analogy exists between the dermal bony tubercles and spines of the cartilaginous fishes and their teeth. The thick enamelled scales of the ganoid fishes of Agassiz exhibit an organization similar to that of the teeth: the system of minute parallel tubes, with their branches and anastomoses, in the thick scales of the extinct *lepidotus*, is as complicated as in many teeth, and equally militates against the theory of formation by transudation of layers being applied, at least, to the ganoid scales."

distinguished a cavity containing fluid, and a dense membrane, (*membrana propria pulpi*) surrounding the cavity, and itself covered by the thin external buccal mucous membrane, which gradually becomes more and more attenuated as the papilla increases in size. In some fishes, as the sharks and rays, the dental papillæ do not sink into the substance of the vascular membrane from which they grow, but become buried in depressions of an opposite fold of the same membrane; these depressions enlarging with the growth of the papillæ, and forming the cavities or capsules in which the development of the tooth is completed. They differ from the capsules of the matrix of the mammiferous tooth in having no organic connection with the pulp, and no attachment to its base: the teeth when fully formed are gradually withdrawn from the above described extraneous capsules, to take their place and assume the erect position on the alveolar border of the jaws.

"Here, therefore, is represented on a large and, as it were, persistent scale, the first and transitory papillary stage of the development of the mammalian teeth; and the simple crescentic cartilaginous maxillary plate, with the mucous groove behind it containing the germinal papillæ of the teeth, offers in the shark a magnified representation of the earliest condition of the jaws and teeth in the human embryo." In other cases, however, as in the Balistes, Sparoids, Sphyræna, Scarus, &c., the teeth go through the entire process of formation which is observed in the mammals.

There is a remarkable observation of Professor Owen on this subject, which, if correct, would at once decide the question before alluded to, of the office and duration of the "proper membrane of the pulp," to which some observers have assigned the office of *secreting* the dentine. "In the shark, and all those fishes in which the teeth are completely formed without going beyond the papillary stage of development, there is no distinct enamel-pulp; the dense exterior layer of the tooth is formed by the calcification of the 'membrana propria' of the pulp, which therefore precedes the formation of the ordinary dentine."

But our space reminds us that we must quit the present class, and pass on to the Reptiles.

The importance of the dental apparatus in determining the affinities of extinct Saurian and other reptiles, has long been known. The external characters of these enduring remnants of an ancient creation have been, with more or less correctness, employed as means of distinguishing or of associating animals of this class, in relation to those of our own period. But until the present work appeared, or at least until its author made known the results of his observations, the subject has been very imperfectly understood, and the full import of these characters only in a slight degree developed. The intimate structure of the dentine has, however, now become as it were a test of these relations; and in future, a slice only of a tooth, examined with the eye of a practised observer, and one fully acquainted with the minute structural character on which the distinctions or relations depend, will be sufficient to indicate the place of an animal of which no other remains may have come down to us.

It is unnecessary for us to enter into any detail of the external characters and the relations of the teeth to the parts with which they are connected. These points are stated in the general observations on the class.

There is, however, one remark, with reference to the attachment of the teeth in reptilia, which bears upon an important physiological question. It is that the modifications of the mode of attachment of the teeth of these animals offer a close analogy to some of the transitory conditions of the human teeth.

"There is a period, for example,* when the primitive dental papillæ are not defended by either an outer or an inner alveolar process, any more than their gigantic calcified analogues in the extinct Mosasaur. There is another stage† in which the groove containing the dental germs is defended by a single external cartilaginous alveolar ridge: this condition is permanently typified in most existing lizards. Next there is developed an internal alveolar plate, and the sacs and pulps of the teeth sink into a deep but continuous groove, in which traces of transverse partitions soon make their appearance: in the ancient Ichthyosaur the relation of the jaws to the teeth never advanced beyond this stage. Finally, the dental groove is divided by complete partitions,‡ and a separate socket is formed for each tooth, and this stage of development is attained in the highest organized reptiles, as in the crocodile." P. 183.

The following observations on the structure of the teeth in this class, are highly interesting, although it is impossible to convey any correct idea of the beauty and complication of the structures described in the absence of the engravings in which they are exhibited:—

"The varieties of dental structure are few in the reptiles as compared with either fishes or mammals, and its most complicated condition arises from the interblending of the dentinal and other substances rather than from modifications of the tissues themselves. In the teeth of most reptiles the intimate structure of the dentine corresponds with that which has been described as its fourth type or modification in the teeth of fishes, and which is the prevailing structure of mammalian dentine, viz.: the radiation of a system of minute calcigerous tubes from a single pulp-cavity, at right angles to the external surface of the tooth. The most essential modification of this structure is the intermingling of cylindrical processes of the pulp cavity, in the form of medullary canals, with the finer tubular structure. Another modification is that in which the dentine maintains its normal structure, but is folded inwardly upon itself, so as to produce a deep longitudinal indentation on one side of the tooth: it is the expansion of the bottom of such a longitudinal deep fold that forms the central canal of the venom-fang of the serpent; but a glance at Pl. 65 A, will show that, notwithstanding the singularly modified disposition of the dentine, its structure remains unaltered: and although the pulp-cavity is reduced to the form of a crescentic fissure, the calcigerous tubes continue to radiate from it, according to the usual law. By a similar inflection of many vertical longitudinal folds of the external cement and external surface of the tooth, at regular intervals around the entire circumference of the tooth, and by a corresponding extension of radiated processes of the pulp-cavity and dentine into the interspaces of such inflected and converging folds, a modification of dental structure is established in certain extinct reptiles, which, by the various sinuosities of the interblended folds of cement and processes of dentine, with the partial dilatations of the radiated pulp-cavity, produces the most complicated structure that has yet been met with in

* "At the sixth month, see Mr. Goodsir, On the development of the Human Teeth—Edinburgh Medical and Surgical Journal, No. 133."

† "At the seventh or eight week.—Ibid."

‡ "At the sixth month.—Ibid."

the teeth of any animal. But this complication is nevertheless referable to a modification of form or arrangement rather than of structure of the dental tissues: the calcigerous tubes in each sinuous lobe of dentine, in the most complex tooth of the Labyrinthodon, exhibit the same general disposition and course as in the fang of the Serpent, and in the still more simple tooth of the Saurian.

"In the Iguanodon the fine-tubed dentine is traversed by medullary canals which run at pretty definite intervals through the dentine, parallel with the calcigerous tubes, as in that coarser kind of dentine which characterizes the teeth of the sloth and the megatherium, and which in connection with the complex form of the teeth of the Iguanodon, peculiarly adapted that gigantic reptile for a vegetable diet.

"The cement is simply and minutely cellular upon the crown of the tooth, but it exhibits the radiated cells at the base of the tooth in the anourous Batrachians, and Saurians. The enamel is sub-transparent, dense, and minutely fibrous in all the reptiles which have their teeth defended by this substance." P. 185.

The law of the arrestation of Development in an organ, in different stages of its progress, according to the advance of the different groups of animals towards the highest type, has already been shown with relation to the teeth, in those of many fishes, in which these organs do not proceed beyond the first or papillary stage. It is further illustrated in the present class, by an advance in their organization to the next stage.

"The teeth of reptiles are never completed, as in certain fishes, at the first or papillary stage; but the pulp sinks into a follicle, and becomes inclosed by a capsule: the process of development, however, never offers the eruptive stage, in the sense in which this is usually understood, as signifying the extrication of the young tooth from a closed alveolus.

"The completion of a tooth is soon followed by preparation for its removal and succession; the faculty of developing new tooth-germs seems to be unlimited in the present class, and the phenomena of dental decadence and replacement are manifested at every period of life; the number of teeth is generally the same in each successive series, and the difference of size presented by the teeth of different and distant series is considerable.

"The new germ is always developed, in the first instance, at the side of the base of the old tooth, never in the cavity of the base; the crocodiles form no exception to this rule. The poison-fangs of serpents succeed each other from behind forwards; in almost every other instance, the germ of the successional tooth is developed at the inner side of the base of its predecessor. In the frog the dental germ makes its appearance in the form of a papilla developed from the bottom and towards the outer side of a small fissure in the mucous membrane or gum that fills up the shallow groove at the inner side of the alveolar parapet and its adherent teeth; the papilla is soon enveloped by a capsular process of the surrounding membrane: there is a small enamel pulp developed from the capsule opposite the apex of the tooth; the deposition of the earthy salts in this mould is accompanied by ossification of the capsule, which afterwards proceeds *pari passu* with the calcification of the dentinal papilla or pulp; so that, with the exception of its base, the surface of the uncalcified part of the pulp alone remains normally unadherent to the capsule.

"As the tooth acquires hardness and size it presses against the base of the contiguous attached tooth, causes a progressive absorption of that part, and finally undermines, displaces and replaces its predecessor. The number of nascent matrices of the successional teeth is so great in the frog, and they are crowded so close together, that it is not unusual to find the capsules of contiguous tooth-germs becoming adherent together as their ossification proceeds. After

a brief maceration the soft gum may be stripped from the shallow alveolar depression and the younger tooth-germs in different stages of growth are brought away with it.

"The mode of development of the teeth of serpents does not differ essentially from that of the teeth of the Batrachian above described, except in the relation of the papillæ of the successional poison-fangs to the branch of the poison duct that traverses the cavity of the loose mucous gum in which they are developed." P. 186.

Compelled as we are by want of space to limit our extracts and analysis to the generalities of each class, we resist the temptation, no easy task, to transfer to our pages the account of the Labyrinthodon, which is not only interesting as affording an additional example of the value of the characters of dentinal structure in reference to the relations of animals, but also as exhibiting the most strikingly beautiful structure perhaps to be found in the whole range of these exhaustless varieties. We pass therefore to the concluding class, the Mammals:—

"The teeth of the Mammalia usually consist of hard or unvascular dentine, defended at the crown with an investment of enamel, and everywhere surrounded by a coat of cement. The coronal cement is of extreme tenuity in Man, Quadrumana and terrestrial Carnivora; it is thicker in the Herbivora, especially in the complex grinders of the Elephant, and is thickest in the teeth of the Sloths, Megatherioids, Morse, and Cachalot. Vertical folds of enamel and cement penetrate the crown of the tooth in the Ruminants, and in most Rodents, and Pachyderms, characterizing by their various forms the genera of the two last orders: but these folds never converge from equidistant points of the circumference of the crown towards its centre. The teeth of the quadrupeds of the order *Bruta* (*Edentata*, Cuv.) have no true enamel; this is absent, likewise, in the molars of the Dugong, the Zeuglodon and the Cachalot.* The tusks of the Narwhal, Walrus, Elephant, Mastodon, and Dinotherium, consist of modified dentine, which, in the large proboscidian animals, is properly called ivory, and is covered by cement.

"The central part of the fully-formed tooth in man and most other animals contains an irregular kind of osseous substance, which is most abundant in the Cachalot, and forms around foreign bodies which may gain admission to the pulp-cavity of tusks. A fifth substance which, from the number and regular position of the vascular canals in it, I have termed the 'vascular dentine,' forms the body or axis of the tooth in the Sloth-tribe, and is present in smaller proportion in the centre of the teeth of the Armadillos. The teeth of the Orycteropus consist of congeries of long and slender prismatic columnar denticles, each consisting of a body of dentine, with a coating of cement, by which they are united together to form a composite tooth, as in some of the Cartilaginous Fishes." P. 302.

The general conditions of the structure and of the development of the Mammalian teeth, have been already treated of in the Introductory portion of the work. "In most of this class the body of the tooth consists of a

* "Mr. Fr. Cuvier divides the teeth of Mammalia, according to their composition, into four classes: the first consists of ivory, (dentine,) enamel and cement; the second of ivory and enamel; the third of ivory and cement; the fourth of ivory only. '*Dents des Mammifères*,' p. xxi. I have met with no Mammalian teeth, in which cement is absent, and believe that the second and fourth of the above-cited classes of teeth, have no existence in Nature."

gelatinous animal basis, and calcareous earth, combined and arranged according to the plan which characterises the tissue called 'unvascular dentine.'" But "in the incisors of certain Rodents, and in the molars of the Sloth and Megatherioids, or the large extinct phyllophagous *Bruta*, more or less of the dentine is modified by the persistence of certain tracts of the pulp-cavity, forming vascular or medullary canals;" in other words, "vascular dentine."

We have seen, in the fishes, that in many species the development of the matrix of the tooth has been arrested at its first or papillary stage; that in the Reptilia it advances another step; but it is only in the present class that, in all cases, "the matrix sinks into a furrow and soon becomes inclosed in a cell in the substance of the jaw-bone from which the crown of the growing tooth extricates itself by exciting the absorbent process, whilst the cell is deepened by the same process and by the growth of the jaw, into an alveolus for the root of the tooth. When the formative parts of the tooth are reproduced indefinitely to repair by their progressive calcification the waste to which the working surface of the crown of the tooth has been subject, the alveolus is of unusual depth, and of the same form and diameter throughout, except in the immature animal when it widens to its base. In teeth of limited growth, the dentinal pulp is reproduced in progressively decreasing quantity after the completion of the exterior wall of the crown, and forms by its calcification one or more roots or fangs, which taper more or less rapidly to their free extremity. The alveolus is closely moulded upon the implanted part of the tooth; and it is worthy of special remark that the complicated form of socket which results from the development of two or more fangs is peculiar to animals of the class Mammalia."*

The formation of the second tooth from the matrix of the predecessor, is a theory asserted by all previous authors since the time of Hunter; and it takes place in most of the mammalia. In some cases the new tooth takes the place of its predecessor; in others, it takes its situation by its side. The process by which this formation of a second tooth originates is properly termed gemmiparous, and certainly not, as Professor Owen calls it, "fissiparous."

In entering on the consideration of the particular groups of the class, the horny teeth of the ornithorynchus and echidna are described; and these are followed by an elaborate examination of the structure of the palatine substitutes for teeth in the true whales. Treating these curious appendages as modifications of teeth, the descriptions are adapted to this view of their nature. "The baleen-pulp is situated in a cavity at the base of the plate, like the pulp of a true tooth; whilst the external ce-

* On the strength of this generalization I have established the Mammalian nature of the huge extinct animal called *Basilosaurus* by Dr. Harlan, and have advocated the claims of the diminutive *Amphitherium* and *Phascolotherium* of the oolite slate of Stonesfield, to be admitted into the same high class against the objections raised by Dr. de Blainville. See Comptes Rendus de l'Acad. des Sciences, Oct. 22, 1838. The bifid base of the teeth of certain Sharks not being implanted in a socket, forms no true exception to the rule enunciated in the text. Geological Transactions, 2nd Series, vol. vi., p. 66.

menting material maintains, both with respect to this pulp, and to the portion of the baleen-plate which it develops, the same relations as the dental capsule bears to the tooth. According to these analogies, it must follow, that only the central fibrous or tubular portion of the baleen-plate is formed, like the dentine, by the basal pulp, and that the base of the plate is not only fixed in its place by the cementing substance or capsule, but must also receive an accession of horny material from it, as Hunter first indicated; this material answers to the cement of true teeth."

The description of the baleen-plates by Hunter, introduced in the following passage, is very characteristic of his homely but striking and graphic and truthful style:—

"Each plate of baleen consists of a central coarse fibrous substance, and an exterior compact fibrous layer: but this reaches to a certain extent only, beyond which the central part projects in the form of the fringe of bristles. John Hunter first expressed a belief, that the part of the baleen, which was formed by the core or pulp was the hair: and that this received the compact layers on the outside, from the dense but vascular substance between the bases of the plates; which substance he well describes to act as abutments to the whalebone, like the alveolar processes of the teeth, keeping them firm in their places. And he further observes: "As both the whalebone and intermediate substance are constantly growing, and as we must suppose a determined length, necessary, a regular mode of decay must be established, not depending entirely on chance, or the use it is put to. In its growth three parts appear to be formed; one from the rising core, which is the centre; a second on the outside; and a third being the intermediate substance. These appear to have three stages of duration; for that which forms on the core, I believe, makes the hair, and that on the outside makes principally the plate of whalebone; this, when got a certain length breaks off, leaving the hair projecting, becoming at the termination very brittle; and the third or intermediate substance, by the time it rises as high as the edge of the skin of the jaw, decays and softens away like the old cuticle of the sole of the foot when steeped in water.'

"A thin transverse section of baleen, viewed with a low magnifying power, demonstrates that the coarse fibres, as they seem to the naked eye, which form the central substance, are hollow tubes, with concentric laminated walls. When a high magnifying power is applied to such a section, the concentric lines are shown not to be uniform; but interrupted here and there by minute elliptical dilatations, which are commonly more opake than the surrounding substance, and which, like the calcigerous cells of true bone, are probably remains of the primitive cells of the formative substance; similar long elliptical opake bodies or cells, are dispersed irregularly through the straight parallel fibres of the dense outer laminæ of the baleen plate.

"The chemical basis of baleen, according to Brandé, is albumen hardened by a small proportion of phosphate of lime." P. 316.

We have hitherto confined our remarks and extracts to the generalities with which each chapter commences, because it would be impossible, without some such restriction, to attempt anything like an analysis of the work, within a moderate space. The subject of Human Dentition, however, is so important, and so elaborately treated in the present work, that we shall deviate from the rule which we have prescribed to ourselves, and enter somewhat at large into this subject. The general structure and arrangement of the teeth in Bimana, are similar to those of the highest forms of Quadrumana; but there are still some interesting and important distinctions in both particulars.

The researches of Mr. Owen on the history of the larger Apes, are already well known to all zoologists. By them he has been enabled to overcome the difficulties arising from the imperfect accounts which have from time to time been given of these animals; and which have been so various as to have rendered the distinction of the species of this group altogether a matter of ambiguous speculation; whilst at the same time a want of more complete information on the one hand, and, on the other, perhaps an imperfect or erroneous application of the information actually possessed, had tended to perpetuate much of the obscurity. In the papers of Professor Owen in the Zoological Transactions, the characters of the teeth at different ages, in both the genera of the large anthropomorphous apes are brought to bear in an admirable manner upon these points, and exhibit a remarkable instance of clear and acute scientific criticism. We were therefore prepared for the full and satisfactory account which we find in the present work of the teeth of these animals, and which is as complete in an anatomical point of view, as the former treatise was in relation to formal Zoology. Omitting the long and elaborate account of the forms, situation or position, and succession, we proceed to quote the concluding passage of the detail of the structure, which brings us to the account of the teeth of the human subject:—

"The microscopic structure of the teeth of the Quadrumana is conformable throughout the platyrhine and catarhine groups, and closely resembles that which Purkinje, Retzius, Muller and myself have described in the Human subject. As this structure will be more particularly elucidated in the chapter on the Human teeth, I shall here merely mention the most obvious differences which the teeth of the Quadrumana present, and which are manifested not only in the Baboons and Monkeys, but in the most anthropoid ape, viz., the Chimpanzee. In the incisor and canine the general direction of the calcigerous tubes agrees with that figured in Fraenkel's Thesis, and by Retzius in his "Mikroskopiska undersokningar,' in the corresponding Human teeth. The tubes in the Chimpanzee describe the same primary curvatures, but less strongly; and the secondary gyrations are longer and more feebly marked: they are $\frac{1}{10000}$th of an inch in diameter, and the interspace between two tubes on the same plane equals the width of two tubes, when viewed in transverse section near the pulp-cavity; nearer the enamel the interspaces are wider; but in general they are more closely arranged and relatively more numerous, besides being straighter than in the Human subject. They maintain the same diameter through three-fourths of their course; divide sparingly, except close to the enamel boundary and the periphery of the fang: in this part of the tooth the minute lateral branches are most numerous. The calcigerous cells of the dentine are most conspicuous, as usual, near the periphery of the crown, where their well-defined semi-circular contour is seen with its convexity next the enamel; from ten to twelve dentinal tubes on the same plane are included in the diameter of a peripheral calcigerous cell: the cells decrease in size and increase in number, and become less definable as they become situated nearer the pulpy cavity. The enamel fibres are more wavy, even, than in the human teeth: they are $\frac{1}{1000}$th of an inch in thickness, and manifest the striated indication of their cellular origin as distinctly as in the human teeth. The vertical fibres ascending from the summit of the crown of the canine of the Chimpanzee described twenty acute-angled undulations in their course. In the section examined, the bend in one direction transmitted more light than in the opposite, and gave an appearance of waves upon the cut surface of the enamel. This is the character attempted to be shown by Fraenkel in fig. 4 of his thesis, and which Retzius says he had not succeeded in observing

in human enamel. The lines of growth or strata of the enamel were best displayed in transverse sections of the incisors and canines. The cement is thickest at the apex of the fang; the Purkinjian cells are traceable to near the neck of the tooth, over which the clear basis of the cement is continued upon the enamel; the tubuli continued from the cells are most numerous on the side next the dentine: they form likewise rich anastomotic plexuses in the interspaces of the cells, besides communicating with peripheral ramifications of the tubuli of the dentine; their diameter is $\frac{1}{11500}$th of an inch." P. 451.

Thus then, having reached in the Chimpanzee the highest step in the series of the brute creation, "our succeeding survey of the Human dental system, expanded by retrospective comparisons, becomes fraught with peculiar interest, since every difference so detected establishes the true and essential characteristics of that part of Man's frame."

"The most marked distinction between the dentition of Man and that of the highest Quadrumanes is the absence of the interval between the upper lateral incisor and the canine, and the comparatively small size of the latter tooth; but its true character is indicated by the conical form of the crown, which terminates in an obtuse point, is convex outwards and flat or sub-concave within, at the base of which surface there is a feeble prominence: the conical form I find best expressed in the Melanian races, especially the Australian: the canine is more deeply implanted, and by a stronger fang than the incisors; but the contrast with the Chimpanzee is sufficiently manifest. There is no sexual superiority of size, either of the canine or any other single tooth in the human subject." P. 453.

The author then proceeds to describe more fully the distinction between the teeth of Man and the higher Quadrumana in detail, especially with regard to the deciduous series; and concludes, with reference to these, that "the differences brought out by the foregoing comparisons, though less striking than those exhibited by the permanent teeth, will be appreciated by the philosophical anatomist as yielding more certain evidence of the essential distinction of the Bimanous species: he will perceive that they are not due to mere adaptive developments, but are manifested at a period when the subjects of comparison are far from having attained the pre-ordained term of deviation from the common primordial type, and antecedent to those changes in the dental system itself, which more broadly characterise the species, and, in the Orang and Chimpanzee, proceed further to mark the different sexes."

The general statement of the component parts of the human tooth is thus given: "The body of the tooth consists of hard or unvascular dentine; the exserted part or crown is invested by enamel; the whole tooth is coated by cement, but this attains the thickness requisite for the development of its characteristic radiated cells only upon the fang or fangs. Every tooth has an internal cavity, which contains the remains of the vascular dentinal pulp, and is thence termed 'pulp-cavity:' it is progressively diminished in size as the dentine is completed; remains widest at the base of the crown, and contracts as it descends along the fang or fangs, dividing according to the number of these; and, when they are connate and form apparently a simple root, the pulp-cavity indicates by its division into linear fissures, continued from the coronal dilatation, the number of fangs which compose such undivided root. After the pulp-cavity has been reduced by the completion of the dentine, it is further diminished by the conversion of part of the residuary pulp into a layer of osseo-dentine.

The cement, which is thickest at the end of the fangs, sometimes penetrates the pulp-cavity, and blending with the osseo-dentine closes the aperture except where two or more minute canals perforate it for the passage of capillary blood-vessels, and nerve filaments."——Now, in reference to the said "Osseo-dentine," we must confess ourselves at a loss to discover where is the essential distinction, excepting that difference which arises from change of circumstances, between this substance and the normal dentine. It is the result of the "conversion," to use our author's theory, or "secretion," according to others, of the same substance as originally produced the latter substance, and differs only in some minute characters of its structure; we should, therefore, certainly consider it more strictly correct to view it in the light of modified dentine, than as a substance deserving a distinct appellation, and viewed as a fourth component of the human tooth. A more particular account of the author's ideas on the subject of this peculiar substance is given farther on. "In my report to the British Association in 1838, which contains the first announcement of some of the observations described in detail in the present work, I stated, with respect to the component structures of a tooth, 'that, in addition to those usually described and admitted, there were other substances entering into the composition of teeth, and presenting microscopic characters equally distinct both from ivory, enamel, and cement, and from true bone, and as easily recognizable.'* Of these is the tissue, there first defined, and which I have since called 'osteo-dentine,' from its combining the vascular concentric coated canals of the osseous tissue, with a development of the fine tubes resembling those of true dentine, but with stronger and less regular curvatures. This substance is found lining the pulp-cavity of old teeth; and sometimes forms the middle part of the grinding surface of much worn molars; but the conversion of the remains of the pulp into the osteo-dentine is constant in human teeth after the age of twenty years.†"——Now, the

* "One of these substances is characterized by being traversed throughout by numerous coarse canals, filled with a highly vascular medulla or pulp, sometimes anastomosing reticularly—sometimes diverging and frequently branching,—sometimes disposed nearly parallel with one another, and presenting more or fewer dichotamous divisions. The canals in many cases are surrounded by concentric lamellæ, and thus resemble very closely the Haversian canals of true bone; but the calcigerous tubes which everywhere radiate from them are relatively much larger. The highly-organized tooth-substance just described differs from true osseous substance, and from cœmentum, in the absence of the Purkinjian corpuscles or cells."—Trans. Brit. Assoc., 1838, p. 137.

† Lintott "On the Structure of the Human Teeth," 1843. John Hunter appears first to have called attention to this process, which prevents the exposure of the pulp-cavity when the crown is worn low down; he calls the substance "new matter," and says, "it may be easily known from the old, for when a tooth has been worn down almost to the neck, a spot may always be seen in the middle, which is more transparent, and at the same time of a darker colour, and generally softer than the other." Hunter's success in injecting vessels in the cavities of the teeth in very old people is explained by the existence of vascular canals in the osteo-dentine and their communication with similar canals perforating the thickened cement. I have already noticed the abundance of this substance in the teeth of the Cetacia, and its centrifugal development from detached centres

view which we should be disposed to take of this structure is this: that, as soon as the tooth has received its essential form and solidity of structure, the normal office of the pulp ceases; but to provide against further injury, from wearing or other causes of loss of substance, the pulp is still endued with a continued power of producing additional internal portions of solid matter, differing from its normal product only by certain modifications of intimate structure and density. Hence arises the fact, that in the teeth of sailors and others who have been accustomed for years to masticate food which requires very severe trituration, the teeth become worn down until the internal pulp-cavity would be inevitably opened, were it not that it becomes filled up gradually by a fresh "deposit" from, or "conversion" of the residuary pulp in a substance which differs chiefly from the normal dentine in its greater transparency, its more yellow hue, the less proportion of earthy matter, and in certain modifications of its intimate structure. There are some remarkable instances on record of such a filling up of the pulp-cavity by this modified dentine, the transparency of which has been so perfect as scarcely to allow of the possibility of any distinct earthy deposits existing within its substance.

"Of the four substances composing the human tooth, that which is most exposed to outward influences, and which is first to operate upon the food in preparing it for deglutition, is the hardest, the most solid, the least organized. We have seen that every fibre of the enamel is so disposed, by the preliminary disposition of the cells in which it was moulded, as to give it the utmost strength and power of resistance of which such a tissue could be capable. The polished surface, the pearl-white colour of this dense and brittle substance, adds ornament to use. In the second and principal substance of the tooth, the dentine, we have traced an equally beautiful arrangement of the earthy salts in directions which best resist both vertical and lateral pressure, but with the additional economy of the substitution of the hollow column for the solid prism. The saving of material is, however, the least of the benefits gained by this tubular structure of the dentine: the vitality of the tissue, which Hunter recognized so forcibly, but which, being equally convinced of the non-vascularity of the tissue, he was unable to explain,—willing rather to enunciate an apparent paradox, or be taunted with dilemma, than yield an iota of either of his convictions,*—is explicable by the possible and highly probable fact of a circulation of the colourless plasma of the blood through the dentinal tubes. That some elementary prolongations of nerve may also be continued into these tubes, who may confidently deny? Whoever has felt the pang produced by contact of a probe with the recently exposed surface of the dentine, must at least allow the tubes to be most efficient conductors of the impression to the sentient pulp. Nature has suffered no part of the dentine to be exposed: its organization and vital powers are adequate to its own support in health, and to control that stimulus which, when the dentine is dead and truly an extraneous body, operates detrimentally upon the surrounding more highly organized parts: but the vitality of the dentine is insufficient for the reproduction of its tissues, or for the arrest or repair of decay. The third

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in the substance of the pulp of the Cachalot, forming there sometimes detached masses. A modification of osteo-dentine forms, as we have seen, the main body of the teeth of the Sloths and Megatheroid quadrupeds; but the transition from the normal hard dentine to its vascular modification is more gradual in the human teeth.

* "See Prof. Bell's preface to his Edition of 'Hunter on the Teeth,' p. xlii."

substance which is chiefly developed around the implanted part of the tooth is more highly organized than the dentine, more analogous to bone, and accordingly better adapted for vital connexion with the vascular membrane of the alveolus. It is the cement which renders a living tooth capable of uniting with any part of a living body, as Hunter proved by his ingenious experiments." 469–71.

This is an admirable digest of the comparative characters and offices of the various parts of which a tooth is composed. It may, however, admit of some doubt whether the calcigerous tubules be the medium by which sensation is conveyed through the substance of the dentine. The non-appearance of nervous filaments, is no proof of the non-existence of nervous function; and if it were, the argument would be equally applicable against the passage of nerves through the tubules. It may be thus; but in the absence of demonstration, or of any strong primâ facie probability, it is, we think, too distinct a proposition, that "whoever has felt the pang produced by contact of a probe with the recently exposed surface of the dentine, *must*, at least, allow the *tubes* to be most efficient conductors of the impression to the sentient pulp." The intertubular substance containing, as it does, the great proportion of animal matter of the tooth, may, with great probability, be the medium of sensation. At least there appears to us no reason in favour of the former proposition.

Mr. Owen maintains the omnivorous character of the human dental apparatus, in opposition to those who consider that the condition of these organs, indicates the frugivorous propensity in man. The following passage offers a strong argument in favour of this view, but whether it be the true theory or not admits, perhaps, of some controversy :—

"The Apes and Monkeys which Man most nearly resembles in his dentition, derive their staple food from fruits, grain, the kernels of nuts, and other forms in which the most sapid and nutritious tissues of the vegetable kingdom are elaborated: and the close resemblance between the Quadrumanous and Human dentition shows that Man was, from the beginning, more especially adapted 'to eat of the fruit of the trees of the garden.'*

"But the Quadrumana are not exclusively frugivorous. Some are known to seek the eggs and callow-brood of birds. The African Baboons pass whole hours in turning up great stones in quest of insects. The young Chimpanzees and Orangs in our menageries manifest no repugnance to cooked meat, and the avidity with which they will pluck and devour a sparrow leads us to suspect that their vegetable diet is occasionally varied by the capture of a live bird.

"The formidable development of the canine teeth in the Orangs and Baboons seems, at the first glance, to relate to the predominance of animal food in their regimen; but the sexual difference in the development of those teeth might have indicated that they had other subserviences than to the acquisition of daily sustenance, if observation had not shown them to have been given to the males for the purpose of combat and defence. The molar teeth are those which form always the best and sometimes the sole guides to a knowledge of the diet of a mammiferous animal: and these clearly indicate the frugivorous and mixed regimen of the Quadrumana and Man.†

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* "This is the conclusion to which my friend Prof. Bell has arrived in his 'Physiological Observations on the Natural food of Man, deduced from the characters of the Teeth.'" On the Teeth, &c., 1839, p. 33.

† "John Hunter in considering the question, 'Under what class do the

"We have seen that the most striking characteristic of the human dentition is the absence of any disproportionate development of particular teeth, and the concominant continuity of the series in both jaws: the more immediate comparison with the Quadrumanous dentition, while it demonstrates the close similarity of the molar teeth, and supports the consequent deduction of an omnivorous diet, brings to light the very interesting difference in the proportions and disposition of the incisive and canine teeth, by which we may appreciate the adaptation of the human dentition to Man's peculiar and higher attributes. His reason furnishes him, in the lowest condition of savage life, with weapons more formidable than sharp and long canine teeth, and his mastery over fire, the prime element of cookery, enables him to dispense with strong and prominent incisors in the reduction of the tough, raw, and indigestible parts of vegetable or animal food.

"But the moderate and equable development of the anterior teeth, and the graceful continuous curve which they form with the molar series, have not merely a negative relation to the substitutes which Man's inventive faculty provides for the absence of the large and strong incisors and canines of the Orangs. The smooth and equable posterior surface of the incisors, their vertical position and their close arrangement in a gentle curve with the canines, offer the best conditions for reacting upon the tongue in the various applications of that organ to the teeth during speech. The appearance of the teeth in the mouth is contemporaneous with the child's power of forming articulate sounds; and the clearness of utterance is affected both by the temporary deficiency of the incisive series during the change of dentition, and in a still greater degree by the final loss of the teeth and their sockets in old age.

"Lastly, the vertical symphysis of the human jaw not only affords the most favourable position to the incisors in relation to speech, but is accompanied in the highest races with a prominence of the lower border forming the chin, which is wanting in every inferior animal: and this remarkable feature, with the short jaws proportioned to the small incisors and canines, harmoniously combine with the capacious forehead in stamping the head of Man with the impress of his intellectual superiority." P. 473.

We have turned to the passage in Mr. Bell's work on the teeth, and we confess we see much reason to agree in the opinion there enunciated, that judging "from the formation of his teeth, and digestive organs, as well as from the character of his skin, and the structure of his limbs," "man was originally formed a frugivorous animal, and, therefore, probably tropical, or nearly so, with regard to his geographical situation."

We cannot pass over, with a mere allusion, the concluding portion of the work, which is devoted to the Proboscidian Pochyderms; for, although it is too long to be transferred to our columns, and too elaborate to be analyzed, yet it exhibits as remarkable examples, as are to be found in the whole work, of that combined philosophical application of truth, and indefatigable search after it, which so remarkably characterize the author's mind. We are reluctantly compelled to limit our extract to two or three passages. The curious and well-known instances, of not very unfrequent occurrence, of balls being found imbedded in the tusks of elephants, are thus accounted for, and the process of their investment by modified ivory elaborately described.

Human Teeth come?' concludes by stating, 'He, (Man,) ought, therefore, to be considered as a compound, fitted equally to live upon flesh and upon vegetables.'" Nat. Hist. of Human Teeth, 4to., 1771, p. 120.

"The central part of the tusk, especially near the base of such as have reached their full size, is occupied by a slender cylindrical track of modified ivory, perforated by a few vascular canals, which is continued to the apex of the tusk. It is not uncommon to find processes of osteo-dentine, or imperfect bone-like ivory, projecting in a stalactitic form into the interior of the pulp-cavity, apparently the consequence of partial inflammation or malformation of the vascular pulp. The musket balls and other foreign bodies which are occasionally found in ivory, are immediately surrounded by osteo-dentine in greater or less quantity. It has long ceased to be a matter of wonder how such bodies should become completely imbedded in the substance of the tusk, sometimes without any visible aperture, or how a leaden bullet may have become lodged in the solid centre of a very large tusk without having been flattened. Such a ball, aimed at the head of an elephant, may penetrate the thin bony socket and the thinner ivory parietes of the wide conical pulp-cavity occupying the inserted base of the tusk; if the projectile force be then spent, the ball gravitates to the opposite and lower side of the pulp-cavity. The presence of the foreign body exciting inflammation of the pulp, an irregular course of calcification ensues, which results in the deposition around the ball of a certain thickness of osteo-dentine. The pulp then resuming its healthy state and functions, coats the surface of the inclosing mass of osteo-dentine, together with the rest of the conical cavity into which that mass projects, with layers of normal ivory. The ivory, as it approaches the osteo-dentine, becomes modified by the presence of vascular canals, and assumes the character of vaso-dentine; and the canals frequently form loops directed towards the osteo-dentine. In this substance, the medullary canals diverge, leaving clear interspaces into which numerous irregular branches proceed from the canals, partially uniting to form a net-work, and finally breaking up into distinct cells, of larger size than the Purkinjian cells of the external cement. In the small detached fusiform nodules of osteo-dentine, one or more vascular canals are present with concentric coats of the clear basal substance, studded by Purkinjian cells of the size of those in the cement, but with richer radiating systems of tortuous calcigerous tubes. Some of the larger-sized cells are likewise frequently here present. From both the medullary canals, their subdivisions and the cells, minute calcigerous tubes diverge, with wider intervals and a more wavy and irregular course than the normal tubes of the ivory.

"The portion of the cement forming capsule surrounding the base of the tusk, and the part of the pulp, which were perforated by the ball in its passage, are soon replaced by the active reparative power of these highly vascular bodies. The hole formed by the ball in the base of the tusk is then more or less completely filled up by a thick coat of cement from without and of osteo-dentine from within. Traces of such a cicatrix closing the entrance have been more than once noticed; and Blumenbach deduced, therefrom, a property in the elephant's tusk to pour out bony matter in order to heal such wounds. The reparation is, however, effected by the calcification of the reproduced parts of the capsule and pulp.

"By the continued progress of growth, the ball so inclosed is carried forwards to the middle of the solidified exserted part of the tusk, as in the example in Blumenbach's collection which he considered so curious. Should the ball have penetrated the base of the tusk of a young elephant, it may be carried forwards by the uninterrupted growth of the tusk, until that base has become the apex, and be finally exposed and discharged by the continual abrasion to which the apex of the tusk is subjected. Yet none of these phenomena prove the absolute non-vascularity of the tusk, but only the low degree of its vascularity. Blood circulates, slowly no doubt, through the minute vascular canals which are continued through the centre of the ivory to the very apex of the tusk; and it is from this source that the fine tubular structure of the ivory obtains the essential plasmatic colourless fluid by which its low vitality is maintained." P. 645.

Finally, alluding to the difficulties into which Cuvier was driven, as our author says, by his being cramped, as it were, by the excretion theory. He states that this great comparative anatomist "is compelled, by his hypothesis, to deny a matter of fact. The cement (cortical) being, according to him, an excretion from the internal layer of the capsule, could only be present on that part of the teeth over which such layer extended; but the enamel pulp, which passed with Cuvier for the internal layer, unquestionably ceased to exist at the base of the crown or body of the tooth; therefore, Cuvier denies that the fang has any covering of cement."

Now, this may be quite true as regards Cuvier's opinion above stated; but if it be allowed, as already stated by Blake and others, that the cement is produced by the external layer of the sac, or the true capsule, as distinguished from the enamel pulp, the difficulty vanishes, so far as the situation of the formative structure goes, and the two theories are equally compatible with the existing fact. Mr. Owen, however, concludes in these words:—

"The conversion theory of dental development as propounded and established in the present Work, leads to no such difficulties; its truth, is manifested in the same way as that of the undulation-theory of light, and of every other right theory: viz., by its concordance with facts which are denied or misinterpreted on the wrong theory, and by its more rational explanation of all the phenomena." P. 655.

Here then we conclude a most imperfect, and unworthy attempt to communicate to our readers some idea of this extraordinary work; which, as the result of united industry, research, ardour in the pursuit of truth, genius in the conception, and clearness in the annunciation of theory, is, we believe, without a parallel in the present day. Those only who have gone with careful examination and patient reflection into the details of the work, can have any adequate idea of its fulness and extent, or of the originality and high philosophy of its reasoning. Those, however, who have been acquainted with the previous labours of the distinguished author, will only see in this work, the same high qualities of mind, and the same amazing extent of information, as had already gained for him a fame coextensive with the spread of science itself. May we not hope that this is but the commencement of a series of monographs upon all the different systems of organs, so that while each would, like the present, be complete in itself, the whole would form such a circle of physiological science, as has never before been attempted, or even imagined. We have heard that such a work has been projected, and we cannot but express our earnest hope that life and health may be spared to enable him, Mr. Owen, not only to perfect it, but to enjoy for many years after its completion the high and pure gratification of having thus conferred an inestimable boon upon the scientific world.

Transactions of the Medical Society of London. New Series. Vol. I. 8vo. pp. 221. London, 1846. Highley.

The London Medical Society was established in the year 1773; it is the oldest of any in England. In 1788, the first volume of its Memoirs was published, the opening paper being written by Dr. Lettsom on the character of Esculapius.

This series, amounting to six volumes, was continued until the year 1805. The first part of the seventh volume was not published until 1810, and the second part not before 1817. Things had therefore begun to flag for some time before the late very lengthened suspension. From the last-mentioned date, the Society ceased to exist as a publishing body; its voice was not heard throughout the land, save only by an occasional notice of its proceedings in one or other of the weekly periodicals.

The Council has now very wisely determined to imitate the example of the founders of the Society, by bringing under public notice a selection of the papers that have been read during the last two or three years. We hail the appearance of the present volume as an earnest of increased exertion, and cordially join in the hope expressed by the Council, that "the renewal of these annals will prove a fresh stimulus to the zeal of the Fellows to furnish, from time to time, materials for a series of volumes, calculated to strengthen the bond of scientific union, and thus promote the advancement of medical knowledge, and the consequent alleviation of human suffering."

I. This volume commences with a well-written and very interesting paper by Mr. Thomas Bell, Professor of Zoology in the King's College, and author of several works of acknowledged repute upon this department of Science. It is entitled, "Observations on the use of the Microscope, in investigations connected with Anatomy, Physiology, and Pathology," and formed the substance of the annual oration delivered before the Society, in March 1844.

The author takes a rapid review of the most important discoveries that have been achieved in microscopical anatomy from the time of Malpighi in about the year 1660 down to the present period. He dwells with appropriate emphasis upon the astonishing merits of this celebrated man, pointing out the great extent and variety of his researches, and shewing how nearly he anticipated many of the most vaunted discoveries of modern times, notwithstanding the very imperfect nature of the instruments which he used.

Scarcely inferior to Malpighi, was his contemporary Leeuwenhoek, a native of Delft in Holland. "His range of investigation was boundless; scarcely a structure to which he could gain access, eluded his active and untiring eye; and the Philosophical Transactions of our Royal Society teemed for a considerable period with the results of his indefatigable labours." The names of Grew and Lieberkuhn next come in for notice: to the latter we are indebted for that beautiful appendage to the microscope, the silver cup (which still bears his name,) by which opake objects can

be examined with concentrated reflected light. A lamentable hiatus now occurs in the annals of microscopic research. Hewson, our countryman, has the merit of again restoring the microscope to its proper place in anatomical and physiological pursuits. But his example was not followed as it deserved. Passing over "the coarse and incorrect observations of Sir Everard Home," our author brings us down to the present age. He pays a well-merited compliment to the "busy London Merchant" (Mr. Lister,) to whom the scientific world is so much indebted for the discovery of the true principle of achromatism, and the consequent great improvement that has taken place in the construction of our microscopes. The wonderful disclosures, that have been achieved in the unravelling of minute structures during the last 15 or 20 years, must be known to every one. Mr. Bell, while he admits the great interest and even the importance of many of these discoveries, is not blind to the evils of nimble observation and unadvised generalization that have set in, like a strong current, into the field of physiological enquiry. "It will be very useful," says he, with excellent judgment, "if a degree of philosophical scepticism—a disposition of mind as wholesome in the pursuits of science, as it is baleful in the consideration of questions of a more solemn nature—shall interpose to prevent or modify the hasty and baseless conclusions, to which the love of distinction and fame, or the enthusiasm of a sanguine temper and an undisciplined mind, is apt to lead."

In our notice of the subsequent articles in these Transactions, we shall arrange them not as they stand in the volume, but as they may present some point of relationship to, or may best serve to illustrate, each other.

II. OBSERVATIONS ON THE CAUSE AND TREATMENT OF STAMMERING, &c. By *John Bishop*, F.R.S., &c.

Mr. Bishop commences his paper by alluding with surprise to the opinions of some recent writers, that "Stammering is the result of some abnormal condition of one or more of the organs which compose the vocal apparatus, such as the frænum linguæ, the velum, uvula, tonsils, or some of the muscles of the tongue," and by reprobating the "many surgical mutilations of these organs which have taken place both at home and abroad." He then very properly remarks that "a little attention to the vocal apparatus during the act of stammering will, however, soon enable a competent observer to discover that the affection is entirely of a functional character, and not dependent on any organic lesion of the parts concerned in the production of articulate language."

That any man of common sense should have allowed himself to adopt the absurd notion of Dieffenbach that the infirmity in question depends on a malformation of some of the muscles of the tongue, or the still more silly idea of Yearsley that enlargement of the tonsils is the offending cause, has always surprised, nay grieved, us not a little; for the circumstance is discreditable to the profession. In the following passage, Mr. Bishop succinctly explains the physiology of Stammering:—

"It has been truly remarked by Sir Charles Bell that the consent of a great number of organs is necessary for the production of the most simple sound, or

the articulation of a single word. Dr. Arnott also observes that command over the organs of speech is acquired in the same manner as over all the muscular organs of the body; as for example, in walking, skating, fencing, and performing on musical instruments. Agreeably to this view, it will be found, on analysis, that want of synchronous action of each part of the vocal mechanism concerned in speech is essentially and fundamentally the cause of stammering. The most common species of stuttering is an attempt to articulate before the vocal ligaments are brought into vibratory action, and the breath vocalized; and, therefore, in order to remove this kind of imperfection, we have nothing more to do than to instruct the patient in the art and method of using the vocal apparatus properly. To effect this purpose, it is necessary to call upon the patient to vocalize the breath so as to utter a continuous sound, as by singing a note in music. This he should first do without making any attempt to articulate a syllable; and then, on repeating the same sound, should endeavour to articulate the word required. This he will be enabled to do immediately if, during the whole time that the attempt is made to pronounce the articulate sounds, care be taken that the glottis is kept in action by the vocalization of the air issuing from the lungs." P. 27.

By following this simple plan, the worst stammerer may be made to utter whole sentences without impediment, in the course of a few minutes; and, by perseverance, a cure may very generally be quickly effected.

The interruption of vocalised breath—the real cause, be it remembered, of Stammering—may arise from several different causes, and be *seated* in different parts of the vocal apparatus. It may be caused by closure either of the valve of the glottis, or of the isthmus of the fauces, or of the lips themselves; or, again, it may be owing to the tip of the tongue being turned up so as to come in contact with the palate. To ascertain which of these four conditions is present in any particular case, the following directions are given:—

"When the glottis is involuntarily closed during speech, the articulation of all the vocal sounds is affected. The closing of the isthmus of the fauces necessarily affects, not only those letters and syllables where it ought to remain open, but its irregular action will also cause an involuntary movement, on attempting to pronounce the words beginning with the gutturals *k*, *g*, &c. The involuntary or misdirected action of the tip of the tongue affects the dentals and palatals, such as *l*, *n*, *t*, and therefore words containing or beginning with those letters. That of the lips not only affects the labials, but may likewise impair the pronunciation of all the other letters. The ear of any experienced person may easily detect, without ocular inspection, whether it is the valve of the glottis, or the aperture of the isthmus of the fauces, which is instrumental in producing the interruption, by observing the manner in which the breath is suppressed, and suffered to escape. The same observation will enable him to discriminate the effect produced, when the sounding column of air is stopped by the tip of the tongue. When the lips are the cause of the interruption, we have ocular demonstration to assist us in distinguishing the organs which are instrumental in causing the defect. The mode of relief, however, for all these kinds of stammering is nearly the same, the principle above proposed applying to them all." P. 29.

The remarks of Mr. Bishop on the subject of (functional Aphonia will not detain us long. The loss of power in most instances is referred by him to relaxation of the fauces and soft parts adjacent to the larynx, or to loss of elasticity in the membranes of the vocal tube. By far the most efficient remedy is the application, with a camel's-hair brush, of a solution

of lunar caustic—ten grains to an ounce of water. It will be necessary to administer tonic medicines at the same time, if the constitution is weak.

The influence of a damp atmosphere on the quality of the voice is sometimes remarkable. "When Grassini, the celebrated singer, came from Italy to England the humidity and variable temperature of the air in this country, so relaxed the membranous portions of her respiratory tube, that her voice sank nearly an octave in pitch, and was changed from a soprano to a contralto character. The effect however was, that she acquired great celebrity in consequence of the fine quality and range of her lower notes; but on returning to the milder climate of Italy, the soprano range of voice returned, and she lost at the same time the power of uttering that range of notes which had conferred on her voice its attractive character. In this case the relaxed condition of the vocal membranes was productive of beneficial effects, but it is presumed that such cases are extremely rare."

When Aphonia arises from a purely nervous cause, as from a sudden fright, all remedies, however skilfully devised, will often fail. Time and cheerfulness of spirits are then the best remedies.

III. A CASE OF CYNANCHE LARYNGEA IN WHICH LARYNGOTOMY WAS PERFORMED. By *H. P. Robarts*, Esq.

A gentleman, 58 years of age, had been for several days suffering from general feverishness, slight difficulty of swallowing, and soreness of the right tonsil, when, rather suddenly one evening, the dysphagia increased so much that he could not get anything down his throat. He spoke with pain and considerable effort; but his voice was loud and not hoarse or altered in character. There was great tenderness about the left side of the throat. Although there was no dyspnœa, the patient could not "snuff-up" with his nostrils—a symptom said by Dr. M. Hall to be diagnostic of laryngeal disease. Leeches and then fomentations were applied; an active purge of calomel and jalap administered, and the inhalation of the vapour of hot vinegar and water ordered. The symptoms became aggravated; the breathing was considerably distressed at times, and attended with slight sibilation; and there were occasional fits of coughing. A blister was applied to the left side of the neck, and Belladonna ointment rubbed in over the right. "It was proposed also," says Mr. R. "to administer belladonna internally; but the pain and difficulty of deglutition defeated this part of the plan."* The difficulty of breathing became very much increased; so much so, indeed, that there were all the signs of impending asphyxia: this was in the afternoon of the following day on which the

* We cannot perceive what benefit could have been expected from such a remedy. How was it that an emetic was not administered in the early stage of this case, and the nauseating effect kept up afterwards by frequently-repeated small doses of antimony or ipecacuan? In all acute laryngeal affections, this is a most important part of the medical treatment; steady perseverance in it will often supersede all other remedies.

active symptoms had commenced. Laryngotomy was accordingly performed without delay, to the immediate relief of the patient. The surface, that had been vesicated, was dressed with mercurial ointment; and this was likewise rubbed into the arm-pits: one grain of calomel was also ordered to be given every hour. The temperature of the room was kept up to 70°. Next day, the patient was much better; he breathed quietly through the tube in the larynx, so long as it remained free from mucus; whenever it was at all obstructed, his breathing was much distressed. The use of the tube was, after a day or so, discontinued; and gradually the patient began to breathe with comfort even when the wound in the larynx was plugged up.

The calomel was continued, until ptyalism was induced. In the course of a week or two, the patient was entirely restored to health.

Mr. Robarts, in his remarks appended to this case, alludes to the extreme rapidity with which laryngitis sometimes proves fatal—doubtless by inducing a spasmodic contraction, in addition to the inflammatory swelling, of the glottis. The alarming symptoms are not to be attempted to be combated by inordinate depletion, as seems to have been the case in the last illness of Washington; "his physicians, from an excess of zeal, and from an over-anxiety to save so illustrious a character, abstracted 90 ozs. of blood in little more than 12 hours;"—and this too in an old man upwards of eighty years of age!

IV. A Case of Obscure Abdominal Tumor. By *W. C. Dendy*, Esq.

A gentleman, 31 years of age, while recovering from an attack of Influenza, perceived one evening (Oct. 16) that there was a considerable fulness on the left side of the abdomen; it seems to have come on very suddenly. It increased so rapidly that, in the course of 16 hours, it reached from the margin of the ribs to Poupart's ligament, extending across the umbilicus, projecting into the loins, and resting, as it were, on the crista of the ileum. It presented a uniform shape, and felt soft and doughy; the right side of the abdomen was more or less distinctly sonorous on percussion. No inconvenience was experienced except from a certain degree of dyspnœa, induced no doubt by the pushing up of the diaphragm. The urine was highly charged with the lithates. Two days subsequently, the patient became affected with frequent paroxysms of most severe neuralgia in the track of the lumbar plexus. Messrs. Dendy and Pilcher attributed the symptoms to some intestinal cause—"probably," says the former of these gentlemen, "not fæcal impaction, but an accumulation of morbid secretion, and that rather *iliac* than colic." It deserves to be noticed that, on two or three former occasions in early life, the patient had been somewhat similarly affected with a swelling on the left side of the abdomen; the symptoms had then speedily yielded to the use of aperients. On the present occasion, as well as on that which preceded it four years before, the attack seemed to have followed the use of large doses of the nitrate of potash.*

* On the penultimate attack, we gather that there was a long-continued torpor

21st. We read that "the symptoms continued the same; the neuralgia was very frequent, often very severe; *the tumor occasionally altering, but soon resuming its former shape.*" The excretions from the bowels were very scanty and unhealthy.

The neuralgia extended to the sacral and sciatic nerves; the patient lost strength, and became emaciated; scarcely any feculent evacuation could be procured. On one occasion, it is reported, that "on auscultating a fold of intestine at the edge of the tumour, a metallic gurgling is heard, as if air and water were washing about a distended tube." We also learn, that, after the administration of a copious enema, the abdominal tumefaction, and the neuralgic pains were greatly aggravated. On a subsequent date, it is stated that the swelling was "seemingly intestinal."

We are now told for the first time that "Dr. Bright believes the kidney or its capsule to be the chief seat of disease." On the following day we read: "no alvine evacuation; stupor recurs regularly at 3 P.M. Three distinct elastic nodules perceived on the tumour, bearing the superficial character of cysts." A week after this date, the first somewhat solid motion was passed; and, on the same day, the urine was found to be "turbid throughout, depositing evidently globules of pus, forming about a moiety of the secretion. They mix with the urine on being shaken, but there is no solution; heat produces little change; *liquor potassæ* coagulates the pus in firm long strings." From this time it would seem that the abdominal swelling gradually subsided. The purulent admixture with the urine continued for several days, and then gradually became less and less. In the course of two or three weeks from this period, the patient's health was completely re-established.

Mr. Dendy favours us with a rather tedious examination of the various morbid conditions that *might have been* the cause of the symptoms in such a case as the preceding. Two very acute pathologists, he tells us, regarded the swelling as of splenic origin; while another of his scientific friends actually suspected it to be caused by the development of a malignant (we suppose encephaloid) growth. The presence of a serous or hydatidic cyst was also thought of. Allusion is made by Mr. Dendy to two cases in which an obscure abdominal tumour was of this nature: in one of them, after a month of extreme suffering, masses of hydatids passed *per anum*, and the swelling disappeared.

It is not easy to discover what opinion Mr. D. really thinks the most probable: if he leans to any, it is to that which regarded the kidney or its capsule as the seat of the disease. He remarks that—

"Dr. Bright, who has deeply studied these cases, has observed that the kidney often approaches the left hypochondrium, and looks like spleen: but if we trace it back towards the loins, we find its chief bulk further back and more fixed, so that if the patient rests on his hands and knees, the renal tumor does

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of the bowels, and also "that, about three weeks from its commencement, very copious albuminous deposit was observed in the urine, and this was followed by gradual subsidence of the tumour—an event strongly confirming Dr. Bright's opinion. (Mr. Dendy has rather oddly omitted to tell us, as yet, what this was.) It is right, however, to state that the diminution was also preceded by a severe and perilous hypercatharsis and collapse, the result of drastic purgatives."

not fall forward equally with the splenic, and on percussion the intestine is proved to be between the former tumour and integuments,—not so in the latter case. In my own case percussion did not confirm this latter sign, and indeed the passing of the tube behind a portion of tumour would entice the mind towards the spleen, the intestines rarely, I believe, passing *before* a splenic engorgement. If the kidney be hypertrophied to excess, the error of diagnosis will be extremely probable. For instance, in the case related by Dr. Thompson of Perth, in which the kidney weighed seven pounds imperial, and in which the symptoms were nearly parallel with those of my own, there was but one opinion, I believe, as to its seat,—that it was in the spleen. With all this perplexity, if the graphic pages of the very excellent pathologist to whom I have alluded be carefully studied, the diagnostic error can seldom arise." P. 83.

Allusion is made to three cases recorded by Dr. Johnson in the *Medico-Chirurgical Review* for 1823: in these, the capsule of the kidney formed an immense cyst or bag, which gave rise to great tumefaction outwardly.

The perusal of Mr. Dendy's case has certainly led us to the opinion that not a few of the symptoms were due to intestinal distension, arising from an atonic or semi-paralytic condition of the affected part, coupled with a general torpid state of the liver, and other chylopoietic viscera. The repeated application of sinapisms, and the internal use of the fætid gums, along with bitter purgatives, and perhaps occasional mercurials, would have answered better, we suspect, than anodynes, croton oil, enemata of hot water, &c. The whole catalogue of the symptoms—the urinary excepted—reminds us of what we have witnessed, more than once, in some hysterical females. This view of the case is a good deal strengthened by the history of that very curious and interesting case of abdominal tumour recorded in the number of this Journal for October, 1840, and which occasioned so great discrepancy of diagnostic opinion among some of the leading medical men in Paris. That the peccant cause, in that instance, was in part of a hysterical character, cannot reasonably, we think, be doubted. There are some interesting points of resemblance between it and the present case of Mr. Dendy's.

V. REMARKS ON HYDATIDS. ILLUSTRATED BY A CASE OF HYDATID ABSCESS OF THIRTY YEARS' DURATION. By *Theophilus Thompson*, M.D., F.R.S., &c.

The prefatory observations need not detain us, especially after our ample notice of Klencke's work on the subject in the last number of this Journal. With but one short extract, we shall proceed to give a summary of the interesting case related by the learned President of the Society:—

"Various causes have been assigned for the development of hydatids, such as moist situations, and particular kinds of diet. In the lower animals, the influence of food in this respect is considerable. Rabbits, for example, when fed on green vegetables are much more liable to hydatids than when fed on bran; but, in the human subject, I have not been able to trace any especial influence of food or climate in their production; except that the free use of salt seems unfavourable to their development, and that sailors enjoy a remarkable immunity from these intruders. Judging from the facts which have come to my know-

ledge, the most frequent cause of their appearance in man is mechanical injury; and it is reasonable to suppose that a blow, by impairing the vitality of a suffering organ, may lessen its ability to resist the development of any ova which it may contain."* P. 164.

At the close of the year 1821, after giving birth to a son, the patient became affected with a swelling at the umbilicus, which was regarded as a hernia; a truss was accordingly applied.† It would seem that the tumour remained pretty stationary for nearly eleven years, (her health meanwhile had been very ailing,) when at length it burst, and discharged a quantity of offensive matter, in which there were hundreds of cysts, varying from the size of a grape to that of a melon. (?) The opening healed in five months; but during the six months subsequent to its closure, the tumour re-appeared; and then a second swelling, to the right of the umbilicus, made its appearance: this also, in course of time, broke and "discharged the same sort of stuff as the former." The patient lived for about six years after this, and eventually died in the beginning of 1842.

Dissection.—"A swelling protruded from the umbilicus, three inches in diameter, less firm than fatty tumour, less yielding than abscess; there was a somewhat larger tumour inclining a little to the right side. On opening the former tumour, a quantity of fluid resembling a mixture of chalk and water, having a faint offensive odour, escaped, intermingled with numerous small masses of a substance resembling thick honey. On pressing the second tumour, it was obvious that similar matter escaped from it into the first, and both these receptacles were manifestly supplied from some other reservoir. An incision made from one of the swellings through the abdominal muscles passed upwards, on the right side, into a capacious cyst, or rather conduit, in form resembling intestine; greyish in its interior, and surrounded with circular fibres resembling muscle, but thicker than those of intestine. This pipe was in contact with the peritoneum, lying between that membrane and the abdominal muscles. The intestine immediately behind was uninflamed, and lay loosely in the enclosing peritoneum. The conduit above described, which was about two inches in diameter, passed upwards for about six inches, where it terminated in a pouch, which seemed to have had an opening in its upper part obliterated by a pale, puckered, contracted cicatrix, surrounded with small nodules. This pouch adhered above to the peritoneum, and was connected by coagulable lymph to the under surface of the liver, where was a cavity, three inches in diameter, containing pus of a natural character, intermixed with fragments of hydatid cysts. Between the lobes of the liver was a white firm tumour of the size of a small pear, full of hydatid cysts, about an inch or less in diameter, having fibrous yellowish layers externally, and thin membranous cysts within. Some weeks before death this tumour had

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* "Strong confirmation of this opinion has lately been furnished by Klencke, who observed acephalocysts in cows' milk, and the ovules swimming in the serum of milk; and injected fluid, charged with these ovules, into the veins of different animals. It is an interesting fact that in various instances, a few weeks after the experiment, he found acephalocysts largely developed in those organs on which he had inflicted mechanical injury"

† Previous to this period, and shortly after her first confinement, she had received a kick on the abdomen; and in consequence, as she believed, of the blow, became affected with a moveable tumour in the epigastrium, and under the ribs on the left side.

been felt, and yielded a crepitating sensation, like that produced by peritoneal adhesions. The gall-bladder, three times its natural size, contained some bile, but was distended with compressed hydatid cysts. About eight small firm hydatids were imbedded in the liver, near the surface of this organ, which was dark-coloured and friable. The mesentery was studded with numerous cysts of a similar character. The peritoneum above the umbilicus, for an extent of several inches, was much reddened, thickened, and adherent to the bowels." P. 167.

VI. CASE OF OBSTRUCTED BOWEL, TERMINATING FATALLY. By *C. Waller*, M.D., &c.

An exceedingly corpulent, middle-aged man, who had been for many years the subject of an enormous irreducible scrotal hernia, was rather suddenly seized with a violent pain in the abdomen; the pain was not constant, but recurred at intervals; and there was no feverish excitement of the system. On the previous day (28th Nov.) the bowels had acted very freely from two purging pills taken the night before. All the symptoms of obstruction of the bowels now set in; obstinate constipation in spite of powerful purgatives, vomiting, and great distension. As the herniary swelling, however, remained free from any tenderness, the seat of the mischief was not supposed to exist there. On the 30th, he was bled and had a warm bath; and the use of aperients with enemata was steadily persevered in. Mr. Solly visited him, along with Dr. Waller, on the following day; and both agreed that, as the hernia was free from tenderness and tension, an operation was scarcely justifiable. Leeches were however applied upon the swelling, and small doses of calomel and opium given at regular intervals. The pulse hitherto had not been at all altered from the standard of health. On Dec. 2d, as there was no amendment, Dr. W. ordered a drastic purgative, as an *ultima ratio*. Accordingly, five grains of calomel and ten of gamboge, and as many of scammony, were administered in one dose; it was retained on the stomach, although hitherto the vomiting had been unappeasable. Next day, the patient was in every respect worse; the bowels had not acted, and the feeling of distension most agonising. It was accordingly determined to give the patient the chance of relief from an operation. It is thus described:—

"The incision was made in the usual manner, and on opening the sac, a large portion of omentum, loaded with fat, protruded itself. This mass was adherent in many parts to the sac. Behind this there was a large portion of colon, healthy in its appearance. The adhesions of the omentum were partly cut away, and partly torn through, and when freed, a ligature was put round it, and a portion cut away, which was afterwards found to weigh twelve ounces and a half. Another large portion of colon was then discovered at the posterior part of the sac, of an equally healthy appearance. Mr. Solly, finding considerable difficulty in returning these portions of the gut, passed his finger up to the neck of the sack, and, with a hernia knife, divided a few of the external fibres forming the margin of the abdominal ring: he next drew down successively both portions of intestine, to ascertain *whether* and *where* they had been strictured, but there was not the slightest appearance of injury on any part of the bowel, which was then returned into the cavity of the abdomen; this part of the operation was effected with difficulty, in consequence of its great distension. The edges of the

wound were then united by sutures, over which gum plaster was applied, and upon this a strong compress of lint, the whole being secured by a T bandage." P. 134.

The patient died early on the following morning.

Dissection.—"No traces of disease manifested themselves." The herniary sac was quite empty, and exhibited not a trace of inflammation. All the intestines, small and large, were enormously distended with flatus; one portion of the transverse colon was not so much distended as the rest, but it was not at all contracted; nor did it present any appearance of having been strictured, although it was this part of the large gut that had been contained in the sac. There was a *very large accumulation of fluid fæces* both in the large and in the small intestines.

Dr. Waller, upon reviewing the history of the case, comes to the conclusion (and we think rightly) that "the greater (?) portion of the intestinal tube was in a state of paralysis," or paralytic atony. He professes himself to be not friendly to the use of drastic purgatives, but prefers mild laxatives, in most cases of obstructed bowels: we cordially join with him in this respect; we have often seen much mischief produced by the indiscreet use of violent medicines in such cases; and even in Dr. Waller's own case, it will be observed, the symptoms become decidedly aggravated after the drastic powder was administered, even although there was actually no mechanical obstruction in the intestinal canal. Dr. W. regrets now that he did not add a small portion of Strychnia to the laxatives: it is very questionable whether it would have been of the least use. A warm spirituous purgative—an ounce, for example, of tincture of rhubarb, or castor-oil with brandy—would have been much better. No mention is made of any outward applications (the leeches excepted) to the abdomen. In all cases of obstructed bowels, the continued application of flannels, wrung out of boiling water, so hot as to prove a decided and even a painful rubefacient, is a most important adjuvant to the use of internal remedies.

With respect to the use of the knife, it may indeed be proper to have recourse to "an exploratory operation," when there is obstruction of the bowels in connection with an existing hernia, although the local symptoms of strangulation be entirely absent; but surely nothing could justify such rude handling of the contents of a hernial sac, as seems to have been practised in the present case, not to mention the very unnecessary removal of a portion of omentum that weighed no less than 12 ounces and a half? That the death of the patient was accelerated by the operation cannot, we should think, be doubted. Dr. Waller seems to have regretted its performance; for he rests its justification on the always questionable, and often most pernicious, old saying, "*anceps remedium melius quam nullum.*"

VII. There is a "Case of Internal Strangulation," related in a subsequent part of these Transactions. The patient had been long subject to attacks of severe abdominal pain, accompanied with partial obstruction of the bowels; but hitherto they had always yielded to the use of purgative medicines. At length, upon one occasion, the symptoms were more obstinate; and although Mr. Bryant says, that "he had but little doubt of the existence of important inward mechanical obstruction in the intestinal

canal," we find him ordering two purgative pills to be taken every four hours! The patient died upon the third day; and here is the report of the state of the bowels that was found upon dissection:—

"On opening the cavity of the belly, a process of omentum was observed to be, as it were, drawn down, having a fixed point of attachment. On examining this more carefully, it was found that this cord-like extension of the omentum was attached to a mass of mesenteric glands, situated behind the duodenum and ileum, from which mass a very *thin membranous cord* was observed, presenting the appearance of a portion of the mesentery, drawing down a finger-like process of the jejunum, which embraces itself, as it were, in common with the ileum, about 3 inches before the termination of that part of the bowel in the cœcum, giving rise to perfect obstruction. The stomach and duodenum were found more than ordinarily capacious, but not distended, containing only about a pint of dark coloured fluid.

"On examining the mesentery, there were evidences of the same tendency, at several points, to draw down one side of the intestine, forming small diverticula. The convolutions of the small intestines were slightly agglutinated by the recent effusion of adhesive matter, and the surface of the serous membrane bearing all the characters of inflammation." P. 146.

The more that we consider these cases of intestinal obstruction, and compare them with each other, the more we are convinced that, on the whole, it would be much better for patients if not an atom of purgative medicine was administered, at least by the mouth; and if the treatment was invariably limited to the use of outward applications, of enemata, and, if need be, of leeches and the lancet.

VIII. A CASE OF ULCERATION OF THE STOMACH AND DUODENUM.—By *W. C. Dendy*, Esq.

A lady, 29 years of age, of a delicate and (suspected) tubercular constitution, had an attack of Hæmatemesis in the Summer of 1844. In May, 1845, after enjoying the festivities of a christening party, she was seized about 11 P. M., with vomiting and diarrhœa: her dinner, we are told, consisted of salmon and lobster-sauce, fruit, and port-wine—a bad mess certainly for an ailing person. Next morning, when Mr. Dendy visited her, she was evidently *in extremis*, and she died an hour afterwards. The abdomen had been, for some hours before, extremely swollen, tense, and tender on pressure. Mr. D. diagnosticated ulcerated rupture of some part of the intestinal canal.

Dissection.—About a quart of thick reddish fluid was found in the cavity of the abdomen. Three inches from the cardia, in the lesser curve of the stomach, there was an irregular opening of about an inch long; and, close to this opening, was a band that almost contracted the stomach into two indistinct cavities. There was a second lacerated opening in the duodenum, about two inches from the pylorus: this one was nearly half an inch in length. Below the rupture, the bowel appeared to be a good deal contracted.

These cases of perforation or ulcerative rupture of the stomach or intestines are very melancholy; for they occur unexpectedly, and, as a matter of course, they defy all remedial means. Persons, who may have been

quietly conversing with their friends, or sitting at work, are, without any warning, suddenly seized with an indescribable sensation of pain and collapse, and die within 12 or 24 hours after the seizure. When this rupture takes place in the stomach, it is almost invariably *in its smaller curvature.*

IX. A Case of Chronic Enteritis, with Perforation of the Intestines. By *E. H. Linnecar*, Esq.

A gentleman, 46 years of age, addicted to drinking freely of spirituous liquors, had been for two years subject to attacks of severe pain in the abdomen, accompanied with vomiting and purging. In these attacks, no symptom had ever suggested the suspicion of organic disease being present. One day, while in his ordinary health, he was suddenly seized with an acute pain in the abdomen, causing him to scream out violently: this state was speedily followed by collapse, and the patient, in the course of eleven hours from the date of the seizure, died.

"The *post-mortem* examination disclosed evidence of severe recent peritonitis, and extensive chronic disorganization. There were six or seven portions of the lower part of the jejunum, and upper part of the ilium, so constricted as scarcely to admit the passage of an ordinary sized writing quill. The intestine between the constricted parts being so much enlarged as to resemble the colon in size. On slitting open the diseased portions, the contracted parts were found in a state of ulceration, the mucous coat being entirely destroyed; and in one spot perforation had occurred, through which a small quantity of liquid feculent matter had escaped, the contents of the intestines were of a dark slate colour. The other viscera were quite healthy, with the exception of the liver, which, although apparently healthy in structure, was stained of a deep melanotic colour, to the extent of an inch within its substance; probably the effect of the gas thrown out from the intestine. The heart and lungs were perfectly healthy." P. 182.

The late Mr. Somes, M. P., died from a very similar attack, if we recollect aright. He was suddenly seized in the House of Commons with a violent pain in the abdomen, and did not survive above a day or so. The perforation was found in the duodenum.

Mr. Linnecar alludes to the rigid spasm of the abdominal muscles as a characteristic symptom of this alarming accident.

X. On Purified Animal Charcoal, as an Antidote to all Vegetable and some Animal Poisons. By *Alfred Garrot*, M. D.

Charcoal (animal and vegetable) has the property not only of absorbing colouring matters, gases, &c., but also of throwing down certain substances from their solution in water, as iodine, lime, &c., and of removing bitter and other matters from vegetable infusions.

Bertrand in 1811 tried *wood* charcoal as an antidote to various mineral poisons; but, in the quantities used by him, it must have been perfectly inert; and Orfila has completely disproved his experiments. Dr. Garrod is not aware of any one having tried the effects of *animal* charcoal before

himself. Having first ascertained that this substance* has the power of precipitating strychnia, morphia, and various other substances from a solution of hydrochloric acid, of the strength of the gastric juice, he proceeded to test its effects upon living animals.

"Two guinea-pigs were taken (about the same size;) to the first, half a grain of strychnia was administered, dissolved in water, by means of a few drops of hydrochloric acid; in about five minutes the animal became tetanic, and soon died from asphyxia, induced by spasm of the respiratory muscles.

"To the second animal was given the same quantity of strychnia, with the addition of animal charcoal to the solution until the bitterness was removed,—not the slightest tetanic symptom appeared.

"This last experiment was repeated several times on the animal, and always with the same result. Strychnia was then given to several rabbits, and it was found that from ½ gr. to ¾ gr. was sufficient to cause death; but when from ½ gr. to ¾ gr. was administered with the animal charcoal, no injurious effects were produced, even when the animals took six times the amount of poison sufficient to destroy them." P. 197.

Dr. G. points out the necessity of using a sufficient quantity of the charcoal to neutralise the effect of the entire amount of the poison that is given. Half an ounce was found to be necessary to counteract the effects of one grain of strychnia in cats and dogs: if less were given, the animals exhibited distinct marks of poisoning.†

"Nux vomica was then given to dogs in doses of from ten to thirty grains: it was found to produce violent tetanic symptoms, or to destroy life, according to the size and age of the animal. When, however, the animal charcoal was given, in quantities varying from half an ounce to two ounces, no effect ensued. In these experiments, the antidote was sometimes given with the nux vomica,—sometimes at periods from five to fifteen minutes after, and the action of the poison was prevented: when the period was further prolonged, the poison produced some symptoms, but still life was preserved. The dogs, in the experiments, were always hungry, and their power of digestion appeared to be very much quicker, and more energetic, than that of the human subject; so that in man, the antidote would act long after the period above mentioned.

"Opium was then used as the poison, in doses of ten grains, it usually destroyed the life of the dog,—in smaller doses, it produced great stupor. Animal charcoal was found to act as a perfect antidote either when given with the poison, or before the narcotic symptoms appeared." P. 199.

Morphia and the salts of that alkaloid, when given with the antidote, were also found to be perfectly inert. The same may be said of Ipecacuan, Elaterium, Belladonna, and various other vegetable poisons, when the charcoal was administered at the same time in sufficient quantities. Even Prussic acid was not an exception; for, when 30 minims (of Scheele's strength) were given along with about half an ounce of the charcoal, no effect was produced; although another dog was quickly killed by the same dose

* The substance here meant is the *carbo animalis purificatus* of the London Pharmacopœia. Vegetable charcoal possesses but a feeble antidotal power: lamp-black has none.

† Half an ounce or so would seem to be required for each grain of morphia, strychnia, or any other alkaloid: the same quantity suffices for a scruple of the Nux Vomica.

of the poison when uncombined. Perhaps the case will appear still stronger, if we look to the action of that most virulent destroyer of life, the active principle of Aconite :—

"Two drachms of Morson's tincture of aconite (which causes tingling and numbness, when applied to any part) were given to a dog with about half an ounce of animal charcoal; the dog experienced no ill effect.

"Full half a grain of Morson's 'aconitina' was given to a middle-sized dog; it soon caused violent vomiting and retching, which continued for some time; then, perfect loss of sensation of the whole surface came on, the heart's action became slow and feeble, and death took place. Even one fiftieth part of a grain was found sufficient to produce the same symptoms, and cause death.

"Three-quarters of a grain were then given to a dog, with about half an ounce of the charcoal, and not the slightest effect was produced, although enough was taken to destroy at least forty dogs. When aconite root, or the leaves, are given, the antidote may be administered some time after the poison." P. 200.

Dr. Garrod has also tried the effects of his antidote upon mineral poisons. Four and five grains of Arsenious acid were given to dogs, with 2 and $2\frac{1}{2}$ ozs. of the charcoal; the animals were but little affected; upon analysing the carbonaceous stools, the presence of the acid was readily discoverable. On the whole, Dr. G. concludes that "animal charcoal is equal to any known antidote of arsenic. It has greater power of removing arsenic from its solution than the hydrated sesquioxyde of iron."

The antidotal powers of the charcoal against corrosive Sublimate are not so decided, nor so much to be depended upon :—

"Whites of eggs, or albumen, in any other form, would be much superior, and would not be required in such large quantities. Animal charcoal will also act as an antidote to the copper and lead salts, and to various other metallic preparations; but when an antidote is known to any of these, as to the lead salts, which is capable of forming insoluble and inert compounds with them, they would be decidedly preferable to animal charcoal." P. 202.

This paper by Dr. Garrod is by far the most original one in these Transactions; it is altogether a very valuable contribution to toxicological pharmacy, and will no doubt attract the notice of the profession generally.

XI. A CASE OF EXTENSIVE ASTHENIC FURUNCULAR ERUPTION. By *J. Risdon Bennett*, M.D., Assistant Physician to St. Thomas's Hospital.

A poor child, two years and a half old, had been ailing for three or four months, when an anthrax-like swelling made its appearance on the back, between the lower angles of the scapulæ. On its most prominent part were several irregular circular openings, exposing the cellular tissue in a sloughing state. A free crucial incision was made through the centre of the tumour, and poppy fomentations and poultices were then applied. As there was a good deal of febrile excitement, purgatives and low diet were ordered. The inflammation and sloughing extended, so that on the 6th of June, (eight days from the first report,) "the integuments over the whole back were implicated by the disease, and there was great heat and redness. The number and peculiar character of the ulcers gave the child's

back the appearance of one large honeycomb. The ulcers were preceded by small circumscribed pustules, falling rather under the denomination of psydracious than phlyzacious, being scarcely elevated above the adjacent skin, and having but little surrounding hardness or inflammation. The centre of these pustules, ere they were fully formed, broke, fell out, and left a deep excavation, presenting a sloughy base, and having a well-defined and for the most part perfectly circular margin. The holes thus made through the integuments had precisely the appearance of having been cut out with a punch, and presented little or no surrounding redness or swelling. In some instances the margin of the ulcer became undermined, and sloughed away, thus increasing the size and destroying the regularity of the original opening.

"The ulcers frequently remained stationary for a day or two, with a bright red base (after the slough had separated,) and then healed. In other instances they extended in depth, and laid bare the muscles, leaving, when healed, a depressed cicatrix. When several openings occurred close together, the integument intervening between the different perforations in some instances gave way, and thus, by the union of these, one large irregular ulcer was formed. But in scarcely a single instance did the original ulcer increase by ordinary progressive ulceration. The vitality of the whole dermoid tissues appeared rather to be simultaneously and rapidly destroyed."

The use of the poppy fomentations was continued,* and quinine, ammonia, beef-tea, &c., were administered. As the quinine was imagined to cause irritation of the bowels, arsenic in small doses was substituted, upon the recommendation of Mr. Kingdon. Dover's powder, along with Hyd. c. cretâ, was given at bed-time. The local affection became gradually more and more favourable; the ulcers healed; and at length the back was entirely cicatrised. "The child, however, had, at this time, confirmed tubercular disease of the lungs, as well as mesenteric disease." It died in the following November, and the dissection amply confirmed the accuracy of Dr. Bennett's diagnosis :—

"On proceeding to examine the body, the back was found to be scarred from top to bottom, and the emaciation extreme. The lungs were tubercular throughout, and tied down by firm adhesions to the pleura costalis. A large vomica existed in the upper part of the right lung, and several smaller ones in the left. There was some serous effusion in the peritoneal cavity. The liver was adherent to the peritoneum, and contained a few softened tubercles. A single crude tubercle existed in the spleen. The intestines were matted together by extensive adhesions, and the mesenteric glands were one mass of tubercular disease. Tubercular depositions existed also between the mucous and submucous coats of the small intestines; and in many spots the mucous membrane was ulcerated, and the muscular coat exposed." P. 119.

It is certainly very remarkable that nature could put forth so much reparative energy as must have been required for the cicatrisation of such an extensive ulcerated surface, when so great an amount of organic disease existed in the viscera at the time.

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* The yeast or beer-ground poultice is generally an excellent application in such cases.

Dr. Bennett reminds the reader that the peculiar form of asthenic furuncular inflammation, illustrated by the present case, and characterised "by the round and regular form of the succeeding ulcer," was first accurately distinguished and described by M. Guersent in the 1st Vol. of the Archives Générales de Medicine, and by Dr. Copland, nearly about the same time. The French writer has thrown out the suggestion that (as there is a close structural analogy between the skin and the mucous membrane of the alimentary canal) the spontaneous perforations of the œsophagus and stomach, which are not preceded either by ulceration or gelatinous softening, may be produced in the same way as the perforations of the dermis in atonic furunculi.

XII. The case of "Lupus of the Face," narrated by Mr. Stedman, is but a sad record of the utter inefficacy of all remedies, external and internal, for the cure of the malignant form of this dreadful disease. The poor sufferer, a lady 25 years of age, lived for nearly 12 years from its first appearance, as "a small tubercular induration on the left side of the nose," which at length burst and discharged an offensive matter. Mr. Scott of Bromley at once pronounced the disease to be of a malignant character: he repeatedly applied pure nitric acid to the part, and at length an apparently perfect cicatrisation was effected. For two years, the patient thought that she had obtained a cure; but then, alas! "the old cicatrix began to lose its integrity, new tubercular indurations sprang up around it, and a sanious discharge oozed from the wound." Again, decided, but temporary, amendment was obtained from the application of the nitric acid.

Upon the recrudescence of the disease, Mr. John Scott of the London Hospital recommended the internal and external use of Iodine: the iodide of mercury was assiduously applied to the wound for two years, but without any decided benefit. The chloride of Zinc also was found to be equally ineffectual. Sir A. Cooper now was consulted; he applied pure oxide of arsenic with a camel's hair pencil to the ulcerated surface, passing it into the exposed lacrymal sac and duct. The agony produced was dreadful; and, although the application was repeated in the course of the fortnight, and with equally distressing consequences to the poor sufferer, no advantage was obtained: the disease seemed to have advanced. It may be worthy of notice that "she was always grateful to Mr. Callaway for suggesting the use of an application composed of lime-water, mucilage, and laudanum, which alleviated her agony, and afforded her comfort."

Want of space prevents our noticing the remaining articles in these Transactions.

There is a very able and elaborate paper "On the Nervous System," by Mr. Pilcher: an eloquent one "On the Incubation of Insanity," by Dr. F. Winslow; the report of a "Case of Ovarian Tumor interrupting Parturition," by Mr. Headland, and of a "Large Polypus of the Uterus during Parturition," by Mr. Crisp; and two or three others of minor consequence. There is one also by Dr. M. Hall, "On the Prevention and Treatment of Apoplexy and Hemiplegia;" but as this is little more than a mere reprint of a paper in his Observations, published last year, it scarcely deserved a place in the present volume.

A TREATISE ON THE DISEASES AND SPECIAL HYGIENE OF FEMALES. By *Colombat de l'Isère.* Translated from the French with Additions, by *Charles D. Meigs*, M.D., with Woodcut Illustrations. Philadelphia: Lea and Blanchard, 1845.

A PRACTICAL TREATISE ON INFLAMMATION, ULCERATION, AND INDURATION OF THE NECK OF THE UTERUS, WITH REMARKS ON THE VALUE OF LEUCORRHŒA AND PROLAPSUS UTERI AS SYMPTOMS OF UTERINE DISEASE. By *James Henry Bennet*, M.D. London: Churchill, 1845.

WE learn something of M. Colombat from the dedicatory letter of the translator of his work. Dr. Meigs indeed has forestalled the reviewers, for not only does he speak of M. Colombat's "enormous toil" and his "elaborate and judicious collation of authorities"—a thousand of whom are indexed up like an army-list at the end of the book—but he tells us that he has himself contributed 100 pages of new matter to M. Colombat's 600, and he adds an opinion which bears the genuine feature and expression of the fag-end passage of a favourable review, viz.: that, "as a text and table-book for the student and practitioner, Dr. M. does not think it has an equal in its department." We must at the outset take the liberty to demur to Dr. Meigs' judgment in this respect. To us it appears that some of the enormous toil might well have been expended in pruning the work, and that the collation of authorities would have been more judicious had they been reduced in numbers, and used with more point and illustration.

Dr. Bennet's work is a monograph on inflammation of the cervix uteri, and we think he has very ably supplied a deficiency in this part of medicine. The subject is very important—it embraces simple inflammation of the uterine neck, and inflammation with its sequelæ, induration and ulceration, and some specific forms of ulcers from syphilis and cancer. We do not hesitate to say that Dr. Bennet has treated these subjects more clearly and faithfully than any author we are acquainted with, and we have read his treatise with much real satisfaction.

It appears that Dr. Bennet has gained his knowledge on uterine pathology principally from the Parisian hospitals, and that, in his official capacity as an *interne*, he has not only enjoyed an extensive and varied field for observation, but has been in the habit of analysing the cases for the instruction of his clinical pupils. We regard this plan as an admirable discipline for an author, and we find the benefit of it in the lucid and faithful descriptions which are the pleasing characteristics of Dr. B.'s book. It is a luxury we covet to meet with a clinical treatise, a plain transcript of what may be verified almost daily at the bed-side—well illustrated but not overdone with cases, and with a due complement of authorities, if they can be made of service. But to fill out a book with a large gathering of cases, and to parade authorities by the squadron is, in the one instance, to be guilty of useless repetitions, and, in the other, of a display

of false learning. So far as imparting information goes, they are both equally inoperative. We think that although there is much that is meritorious in M. Colombat's work, yet that it has a vice within it which is sufficiently indicated in the introduction, when M. Colombat tells us that the fourth section contains "*nearly two hundred pages.*" It is this effort to multiply pages, to expand instead of condense, which makes the book wearisome to read, and detracts very much from its usefulness. We feel that Dr. Meigs has accomplished a somewhat tedious task in translating and editing the work; and, judging from the general character of his additions, we are almost tempted to wish that he had himself written an independent treatise, and have suited his own taste and convenience about giving M. Colombat an English dress. If the object of Dr. Meigs was to render the book available for the student and practitioner, we fear, as it at present stands, that it will draw too largely on the time and patience of both.

We may just notice that both Dr. Meigs' and Dr. Bennet's English is somewhat peculiar; the former, for want of a better title, we must call American, and the latter, has yet to be gleaned of a few French characters which hang about it. With this very occasional exception, Dr. Bennet writes clearly and well, and we are very willing to put up with a little foreign interpolation, when we remember that the matter of the essay was derived from France, and is much improved for having been strained through an English mind.

M. Colombat lays out his treatise on a large scale, and in his first Chapter he considers the Phenomena of Menstruation and Gestation, and the Cessation of the Menses. These subjects are imperfectly described, and Dr. Meigs supplies some of the most important omissions. The influence of climate on menstruation and the reputed cause of the eruption and recurrence of the menses from the ovarian ponte, have been left for Dr. Meigs to discuss. In answer to inquiries from Dr. Meigs, Dr. Vargas of Caraccas in Venezuela, states that in that city menstruation commenced in 70 per cent. of women from 13 to 15 years of age, in 10 per cent. from 11 to 12, in 20 per cent. from 16 to 18, and in very rare cases from 19 to 20 or even 21. The most common critical age was from 45 to 48, with rare cases varying a few years before or after this time.

In the woodcut, which gives a side view of the female pelvis, we notice an anatomical error which is seen in several other books. The posterior lip of the uterus is made longer and more projecting than the anterior. This ought to be reversed.

M. Colombat gives a Chapter on the best mode of examining the female generative organs by the touch and by the speculum. He speaks favourably of the standing posture, with the body bent forward to relax the muscles, for ascertaining the size, weight, direction and elevation of the womb. There can be no doubt that the influence of gravity which is obtained in this position is of great use in the physical examination of the womb, and we are much in the habit of practising it. The horizontal posture, which is too exclusively adopted in this country, frequently effaces for a time some of the diseases, which are felt only in the standing posture. Thus, partial prolapse of the uterus is relieved by lying down, and some of the moveable tumours are displaced beyond the reach of the ex-

amining finger under the horizontal posture. The effect of the vertical position may be aided by a voluntary effort at bearing-down, which often serves to bring the lower part of the body of the womb well within the influence of the finger, which can thus more readily appreciate its weight and direction. The co-operation of the two hands by pressure over the pubes, which is effected easily in this position, contributes to the accuracy of our diagnosis.

M. Colombat finds out that the invention of the speculum is of the highest antiquity, and that an inhabitant of Syria who settled in Rome in the reign of Domitian, first made it known. This is a most happy circumstance, for it has saved us, we hope, from one of those scrambles after notoriety which make claims to priority in an invention or observation, the too frequent subjects of fretful and acrimonious controversy. We fear only with reference to the speculum, that, like the long forceps, it may be endlessly varied, not with any hope of improving a very simple instrument, but to gratify the little vanity and very moderate ambition of new-formed aspiring professors. M. Colombat figures a speculum with eight blades, which we have never seen; and as a pleasing contrast we have the simple conoidal tube of metal known as Recamier's speculum—which, in M. Colombat's words, "to a great simplicity of construction it joins the advantage of being easy of application, of showing better than other instruments the cervix, by reflecting the light upon it. Besides, as it is whole, the mucous membrane of the vagina cannot mask the os uteri by intruding itself between the open branches of speculums composed of several pieces."

These are most desirable advantages, and in our own experience, the common cylindrical speculum, either of metal, or, as we prefer it, of glass, is the most simple, useful, and easily-applied instrument that we know of. It is quite sufficient for the examination of the cervix and vagina in most of the diseases of these structures, and for the application of local remedies for their relief. Sometimes we find the metallic two or three bladed speculum of use, when we want to expand the upper part of the vagina, so as to get room to twist off a small polypus for instance, or to get at a vesico-vaginal fistula, &c. One of the practical difficulties which is met with in the exploration with the speculum, is to get the cervix nicely within its cylinder, and, for correcting any difficulty in this respect, M. Colombat has invented a kind of concave lever, with which he can draw this part within the speculum. We have seen other contrivances for this purpose, such as a long hole in one part of a metallic tube, or a moveable shutter, which may be drawn out of the speculum, and thus allow a finger to enter and reach and redress the cervix. We usually find that a little patience, with a previous arrangement of position, according to the circumstances of the case, will generally be sufficient to effect this purpose, with the ordinary cylindrical glass speculum without these mechanical complications. With reference to the position of the patient, either the back or side, or in some cases on the elbows and knees, on an ordinary bed somewhat raised, have each their facilities for exploration, and ought to be selected according to the peculiarities of the case. We have frequently adopted with advantage the half-sitting, half-reclined posture, with the pelvis brought to the extreme edge of a chair, and the trunk thrown back-

wards, especially when we have had to perform the very useful little operation of scarifying the cervix, which may in this way be completed without any mess or trouble. Before quitting this subject, we have a word to say upon the reputed indelicacy of the use of the speculum. "I have often been told," says Dr. Bennet, "that females in this country will not submit to treatment when afflicted with uterine disease." We have been told so too; but, like Dr. Bennet, we have not found it. We have heard this accusation of indelicacy from practitioners whose diagnosis of uterine disease has, through perhaps a long life, been sought exclusively by the sense of touch, and who declare that, for all *practical* purposes, this is sufficient. We have heard it—and seen it written too—by persons who are evidently quite ignorant of the difficulties and responsibilities which attend the practice of this department of medicine. We well remember a like accusation of comparative inutility being preferred against the stethoscope by a venerable hospital physician, whom we have seen walking around the wards with a bunch of flowers stuck conspicuously in the cylinder of the stethoscope, and, when appealed to with reference to its alleged value in the diagnosis of chest-diseases, used to say emphatically, that there was "more sound than sense in it." Like our veteran accoucheur, he regarded his ordinary means of diagnosis quite enough for all practical purposes, without the education of another sense to assist him. Now we, who are of a medium age, find that we cannot so readily dispense with one of our senses. If the uterus or its contents emit a sound, we like to hear it—if it is within reach, or by any available means can be brought within reach, we like to feel it—and if, again, by direct or mechanical means, we can bring any part of it within our view, we like to see it. And we are quite sure that we can now cure diseases of the womb which were not within the compass of our resources fifteen or twenty years since, and that the advantage to our patients is quite commensurate with our acquired facilities in physical diagnosis. To impute indecorum or indelicacy to the use of the speculum, is, in fact, to raise a false alarm, and with just about as much sense and propriety as it would be to reflect upon a man for examining the rectum both by sight as well as by touch, when a fistula is sought for. The very suggestion of the thing is by far the most indelicate part of it—and the mind in which such a suggestion could be raised or lodged, has just that kind of taint which ought practically to disqualify it for the duties which belong to an obstetric practitioner.

The plan and contents of M. Colombat's work are thus announced :—

"In order to facilitate the study of the lesions of the genitalia, and to group them, as far as practicable, according to the natural order they ought to occupy in a general system of pathology, of which they constitute but a trifling portion, we have made a classification in which we divide them into sections:—as, 1, *Lesions of form and development.* 2. *Lesions of situation.* 3 *Physical lesions.* 4. *Vital lesions.* 5. *Lesions of functions.* 6. *Lesions appertaining to reproduction*

"Although we might be disposed to look upon this classification of female diseases as more rational than those proposed by our predecessors, we are far from deeming it perfect and unattackable. But we are somewhat reassured, in regard to its imperfections, by the consideration that there is no perfect classification in pathology; and further that all writers on female disorders have, like ourselves, met with some shoals which it is impossible to avoid.

"*Synopsis of the Diseases of Females.*

I. SECTION. *Lesions of Form and Development.*	"*Comprising all cases of vicious conformation, whether congenital or accidental, of the sexual organs and their appendages*—among which we enumerate absence of the labia, cohesion of the labia, excessive magnitude of the nymphæ, cohesion of the nymphæ, excessive development of the clitoris, imperforation and stricture of the urethra, absence of the vagina, contraction of the vagina, narrowness of the vagina, obliteration of the vagina, imperforation of the vagina, obturation of the vagina, congenital opening of the vagina into the rectum or bladder, absence of the womb, bifid womb, incomplete development of the womb, congenital occlusion of its neck and its accidental obliteration, and lastly, imperforation of the Fallopian tubes.
II. SECTION. *Lesions of Situation.*	"*Comprising all cases of displacement and deviation of the genito-urinary organs of the female*—among which we arrange hysteroptosis or prolapsus of the womb; anteversion, retroversion, anteflexion, retroflexion, inversion, obliquity, elevation and immobility of this organ; hysterocele and all the hernias of the womb and ovaries; vaginal cystocele and enterocele; vulvar enterocele and cystocele; prolapsus of the urethral mucous membrane; prolapsus of the lining membrane of the vagina, and invagination of the canal.
III. SECTION. *Physical Lesions.*	"*Comprising all cases of lesion of continuity, and the accidental introduction of foreign bodies*—among which are found wounds, contusions and lacerations of the vulva, the fourchette, the vagina, the uterus, and the rupture of the womb; vesico-vaginal, urethro-vaginal and recto-vaginal fistula; and, lastly, foreign bodies accidentally introduced into the genital cavities.
IV. SECTION. *Vital Lesions.*	"*Comprising the phlegmasia, the transformations, and all the pathological products and degenerations of texture*, such as phlegmon, carcinoma, œdema, cysts, varix, fibrous and sanguine tumours of the labia. Inflammation and fungus of the nymphæ, carcinoma of the clitoris and meatus urinarius, erysipelas, prurigo, venereal chancres and syphilitic excrescences of the vulva, acute vaginitis, chronic vaginitis, and all the white discharges; acute and chronic metritis, uterine phlebitis, ulceration, excoriation, fungous tumours and engorgement of the cervix uteri; scirrhus, cancer, carcinoma, putrescence, softening, dropsy and tympanitis of the womb; metrorrhagia, polypus, fibrous tumours, calculus, hydatids, sanguine and lymphatic concretions formed in the cavity or in the substance of the womb; scirrhus, cancer, encysted tumours, and dropsy of the ovary; and, lastly, cancer of the breast.
V. SECTION. *Lesions of Functions.*	"*Comprising the neuroses, neuralgia, and functional derangement of the female organs of generation*, such as cessation of the menses and all the sympathetic phenomena of the change of life. Hysteria, nymphomania, false pregnancy, hysteralgia, anaphrodisia, inertia of the womb, mastodynia, chlorosis, dysmenia, amenia, amenorexia, amenorrhœa, dysmenorrhœa, menorrhagia, menostasis, and all the anomalies of menstruation.

VI. SECTION.

Lesions appertaining to Reproduction.

". "*Comprising the accidents and all the sympathetic phenomena of conception, pregnancy, labour and lactation,* among which are false germs of moles, extra-uterine pregnancy, abortion, strange appetite, anorexia, odontalgia, ptyalism, convulsions, vomiting, nervous cramps of the stomach, nervous colic, constipation, diarrhœa, tenesmus, dysuria, ischuria; the hernias which sometimes complicate pregnancy; dyspepsia, cough, hæmoptysis, hæmatemesis, epistaxis, sanguine plethora, palpitations, syncope, varices, hæmorrhoids, œdema of the limbs, cephalalgia, vigils; neuroses of sight, hearing and smell; neuralgia of the loins, kidneys, groins, pubis, labia and thighs; contusions and lacerations of the genital parts; inversion of the womb and vagina, puerperal peritonitis, milk fever, phlebitis of the uterine and ovaric veins, of the inferior cava and the crural veins; neuritis of the sciatic, crural and sub-pubal nerves; painful œdema, phlegmonous abscess of the mons and labia, of the psoas and iliacus muscles; absence, diminution, suppression or excess of the lochia; miliary eruption, polygalactia, agalactia, retention of the milk in the breast, involuntary flow of milk, alterations of the milk; and lastly, mammary abscess, mammary fistula, cracks, excoriations, flattening, imperforation, absence and multiplicity of the nipple." P. 74.

In the first section, amongst the lesions of form, M. Colombat describes imperforation and stricture of the female urethra, and the best modes of relieving it—noticing, also, the natural or supplemental relief, which an opening of the urachus at the umbilicus occasionally offers. The disease is regarded as the result of congenital deficiency, and the acquired stricture in the adult urethra is not mentioned. An imperforate stricture in a grown-up woman we have never met with; but impediments to the passage of urine, from thickening and contraction of the canal, is a kind of stricture which might well be described. The primary effect of this is simple dysuria—but the straining efforts to relieve the bladder greatly aggravate the affection. The inferior part of the bladder becomes prolapsed, and sometimes the contiguous portion of the urethra—one or both are forced out through the vagina—the urethra gets doubled on itself, curving its canal—the structures become œdematous—straining efforts increase—an involuntary dribbling of urine sometimes comes on—and the bladder is only partly emptied—and that too with much difficulty. The secondary effects of this form of disease are the most troublesome, resulting principally from the displacement of the parts, and they cause much local and constitutional suffering.

This section contains a full chapter on imperforate and contracted vagina, with the treatment adapted for its relief. M. Colombat figures some instruments for the division of the adherent walls, which he invented for the purpose.

The first lesion of situation which is described in the second section is the falling of the womb. We had always thought that prolapsus uteri, as a name for this affection, contained quite enough of Latin and learning to satisfy the most exacting taste for this kind of nomenclature, but M. Colombat has taken the trouble to build up a fresh title quite eclipsing the former one, which is no less a puzzle for the student than Hysteroptosis.

"Hysteroptosis, or falling of the womb, is the displacement of the viscus downwards, and it may be complete or incomplete.

"In the former case the organ escapes entirely from the pelvis, and may be seen completely outside the vulva—in the latter case, on the contrary, it projects more or less considerably into the vagina, but does not descend below the inferior strait. Prolapsion of the womb may take place not only during pregnancy and after delivery, but also while the womb is non-gravid, for it has been met with even in virgins."

We gather from M. Colombat that a prolapsus of the womb in a virgin is a far less frequent disease in France than it is here. He says that Mauriceau, Saviard, Monro, and De Graff, are the only authors who have reported cases of complete prolapsion of the womb in the virgin state. That this displacement occurs far more rarely in single than in married women is sufficiently obvious; but we have—we may say—*frequently* seen it in the former, and we have now three cases under care of the complete descent of the womb in young unmarried women. M. Colombat justly enough regards, as occasional causes of the affection, all movements which require sudden, frequent, and powerful contractions of the diaphragm and abdominal muscles. And it is the constant operation of this class of causes in the hard-working women of this metropolis which bring to our hospitals cases of complete prolapse in virgins. With Lisfranc, and, we may add, Dr. Bennet, our author looks upon uterine engorgement as the principal cause of the displacement in question. But, in the cases we are speaking of, there is no previous congestion present—it is the sole result of the muscular effort. One woman is moving a heavy paralytic patient, and the womb falls—another is putting up the curtains on a bed, and the womb comes down—another, while carrying a basket on her head, or a heavy tray in her hands, stumbles, and with difficulty recovers herself, and this form of hernia takes place. In neither case will the womb have been too heavy, or the vagina unduly lax from marriage or child-bearing, or the floor of the pelvis weak; but all these natural impediments to the accident be overcome by the powerful contraction of the abdominal muscles.

Like most other writers on the subject, M. Colombat describes three degrees of prolapse—and the character of the symptoms of the second degree, with the difference in them when the prolapse has been caused suddenly, and when it comes on gradually, are thus noticed:—

"Most of the symptoms of prolapsus in the second stage are produced by the pressure of the womb upon the surrounding parts, especially the bladder and rectum, or by the stretching of the uterine ligaments. This is put beyond question by the fact that all the symptoms are diminished by rest, and particularly by rest in the horizontal posture, whereas their violence is redoubled by standing and walking. Where the displacement has been gradually produced, the symptoms attending it are less severe than where it takes place suddenly; where it is suddenly produced, it is frequently accompanied with long, protracted faintings, violent floodings, severe pain in the pelvis, vomiting, and sometimes even an intense attack of peritonitis. But, on the contrary, where the displacement takes place slowly, these phenomena are rarely observed, because the organs, having slowly abandoned their natural situation, become, in a measure, accustomed to the unnatural situation they have assumed." P. 123.

With the object of elucidating the mechanism of the displacements, Dr.

Meigs describes the natural supports of the womb. He regards the ligaments as so many stays or restraints upon the womb—the broad ligaments preventing its lateral inclination, and the round ligaments opposing its falling backwards when the bladder is too full; while its vertical position is maintained by the structures forming the septa before and behind it. We cannot forbear to copy the following sensible observations, in which we perfectly accord :—

"It has long since seemed to me," says Dr. M., "that the writers upon prolapsion have lost sight of one most important element in the pathology of the case, and that is, the state of the muscles within the pelvis. They ought to have observed and remarked upon this important physiological law, viz., that the diaphragm has an antagonist force in the floor of the pelvis, which is partly muscular, and that where that muscular floor retains, together with the other tissues of the perineum, its full power and energy, there can be no prolapsion of the womb. The repeated distensions and dilatations to which the floor of the pelvis is subjected in labour, cannot but tend to debilitate it and overcome its power of resisting the antagonization of the diaphragm and abdominal muscles, and as the parts that sustain the womb depend for their own support on the firmness of the tissues composing the pelvic floor, it is clear that the womb may go down with them and it. But let it be observed that the pelvic floor itself is dependent, not merely upon its textural contractility, but on the muscular power of the levator ani muscles—muscles which relax in labour, and in defecation, by a spontaneous power of relaxation, in order to admit of the descent and protrusion of the pelvic floor in question, and which is restored to its proper level, and drawn upwards, and kept there by the sole power of the levator muscles. Hence it is, I think, clear, both by reasoning and by observing clinically the facts in the case, that the weakness and loss of power of the levator muscles have much to do with the pathology of prolapsus uteri.

"It will not, I suppose, have escaped the observation of all persons of experience, that in bad cases of prolapsus, the perineum is thin, feeble in its tension, and that the whole perineum is at a lower level than in those who do not labour under prolapsus.

"It is essential to remark that weakness and prolapsion of the womb are apt to follow bad labours, and to be coincident with the signs of general debility of the muscular apparatus of the whole body. It is not, indeed, met with, except very rarely, in the strong, active muscular subject, and that even in these subjects the prolapsion is rather a state of immobility or fixedness of the womb at a low level, than a real prolapsus." P. 124.

The symptoms which accompany prolapsus in its several degrees are fairly described, although we are much surprised at some obvious omissions. The tumour of the completely procedent womb is stated to be strangulated, oval or globose, but most commonly conoidal; but the direction of it downwards and backwards, in a curved form, so that the os and cervix are best seen when the woman lies on her side and the tumour is examined from behind, is not mentioned. The orifice of the cervix is said in these cases to be "always much contracted." Our own experience is rather the reverse of this. We have noticed the os more gaping than usual, and certainly not smaller than in its natural position. The changes on the inverted surface of the vagina, from being wetted with urine and rubbed by the thighs, are described, but we do not see any special mention of the ulceration which occurs so very frequently at the most depending part of the tumour. It is impossible for any one who has been in the habit of seeing

uterine disease at all extensively, not to have met with numerous instances of this ulceration, and we do not understand how it could have escaped M. Colombat's observation.

In speaking of prolapsus in pregnant women, M. Colombat says that—"when the pregnancy has reached its full term, the escape of the fœtus may be facilitated by gradually dilating the os uteri, and the placenta should be removed by the introduction of the hand into the womb, so as to take it, and not by pulling at the cord." Dr. Meigs has very properly corrected the last error of practice, and we think the artificial dilatation may well be dispensed with. M. Colombat appears to be quite unaware of the effect of labor pains in correcting this hernia. A perfect prolapse of the gravid womb will, under the action of uterine contraction, be replaced, the womb ascending at each pain. We do not mean to say that this auspicious result is invariable, but we have known instances of it, and it affords a strong argument against artificial attempts to open up the passages.

We must refer our readers to a full and valuable chapter on vesico-vaginal and recto-vaginal fistulas. These diseases have afforded M. Colombat full scope for the indulgence of his taste for contriving instruments. Dr. Meigs relates a very interesting case of recto-vaginal fistula, the result of an abscess, which was successfully treated by Dr. J. Rhea Barton of Philadelphia.

M. Colombat makes no mention of rheumatism of the gravid womb, but the deficiency is supplied by Dr. Meigs, who has translated Cazeau's article on this affection, which is the most descriptive and complete that we know of. We feel that any attempt to analyse or condense this article would be unsuccessful, and although the quotation of it is long, we are assured that our readers will be gratified by perusing it.

"*Causes.*—All such circumstances as are favourable to the development of rheumatic affections, may likewise lead to an attack of rheumatism of the womb. Thus exposure, whether momentary or prolonged, to dampness and cold, insufficient clothing, sudden transposition from an elevated to a very low temperature, and all other causes, constitutional and atmospheric, regarded by medical authors as occasional or predisposing causes of rheumatism, may also produce that of the uterus. But, besides these general causes, there is one peculiar to the malady under consideration. I allude to the facility with which this organ, under the thinned integuments of the abdomen, feels the impression of cold in the latter months of pregnancy; the abdomen being guarded, when it encloses the uterus by extremely light garments, which are closely in contact with it, and the antero-sacral region being often badly protected by jackets of insufficient length.

"*Symptoms.*—Rheumatism of the womb often attacks persons constitutionally predisposed to nephritis. It may coexist with a general affection of the same nature; but, in a majority of cases, the uterus alone, and the adjacent structures, are the seats of the disorder. It has, besides, been frequently found to be a consequence of the sudden cessation of rheumatic pain, originally situated in some other part, and suddenly transposed to the womb. Whatever may be the mode of its onset, the disorder is easily recognised by very decided characteristic features. Its principal symptom is pain, where not the least violence has been offered to the organ, the womb becomes the seat of a general or partial pain, the intensity of which varies from the very slightest sense of weight up to the most insupportable agony. It may affect the uterus wholly, or only attack some particular part of it, as the orifice, the fundis, or the cervix. Where the rheuma-

tion is fixed in the fundus only, the pain is felt in the region above the umbilicus. It is increased by pressure, by the contraction of the abdominal muscles, and sometimes by the mere weight of the clothes; the patient, often, is unable to move; if the disorder is seated lower down, there are shooting pains that run from the loins towards the pelvis, the thighs, the external genitals, and the sacral region, along the ligaments of the uterus. Lastly, when the cervix is the affected part, it may be known by the vaginal touch which gives rise to excessive suffering. But of all the causes that serve to exasperate the pain, none is so distressing as the incessant motions of the child.

"Like other rheumatic pains, those of the womb are movable, and are observed occasionally to pass suddenly from one portion of the organ to another. They often suddenly cease, and proceed to attack some other organ. This is most apt to happen, where the uterine rheumatism has been preceded by a fixed pain of some other part of the body, and where remedies are in use calculated to recall the pain to its original seat.

"These pains are characterised by frequent exacerbations that are variable as to their duration and intensity; according to the stage of the malady, they are succeeded by remissions, during which the patient scarcely complains of a vague sense of weight.

"The pains of uterine rheumatism are generally attended with a degree of recto-vesical tenesmus, which is violent in proportion to the severity of the pains and the approximation of the seat of the rheumatism to the lower segment of the organ. In such cases the patient is tormented by perpetual desire to urinate. The discharge of the urine is accompanied with smarting pain, sometimes with severe pains, and in some instances the discharge cannot be effected at all; the efforts to discharge the contents of the rectum are, in some cases, equally fruitless. Most of the German authors attribute this double recto-vaginal tenesmus to the rheumatic disease, which is not always confined strictly to the uterus alone, but may likewise invade the circumjacent organs. M. Stolz seems disposed to think that it arises from the close sympathetic relations of parts so nearly approximated to each other. Should these new pains be owing to a vesical or rectal rheumatism, those of the womb would disappear, or at least be diminished in degree, according to the views of M. Salathe in his Thesis.

"It is to be supposed that there is a degree of heat and swelling of the affected parts; but it is easy to perceive the difficulty of absolutely determining this point, one which we are compelled to admit from analogy.

"Pains of such violence, situated in an organ so important, must of necessity produce a pretty severe general reaction. The disorder, like most of the inflammatory diseases, generally commences with a slight rigor, which lasts fifteen or twenty minutes. The succeeding fever diminishes, or may even wholly cease during the interval between the attacks, yet while they last it is commonly quite severe; the pulse is hard and frequent, the face flushed and excited, the tongue red and dry, the thirst urgent; the skin is hot, and the patient is often found to be extremely agitated and restless. Towards the close of the paroxysm, there frequently supervenes a copious sweat, which seems to be the harbinger of a decided improvement. After this, these general symptoms are appeased, together with the uterine pains, only to re-appear with them, after the lapse of a few hours, or even of several days.

"1st. *Influence of Rheumatism on the progress of Pregnancy.*—Where the attacks may have persisted for a length of time, or where they have been very violent, they are followed by uterine contractions, and may, in this way, bring on premature delivery. In such a case the patient suffers from severe tensive pain. This feeling of tension is not equable, for it rises to a great height, and then subsides—to begin again and pursue the same course at different intervals. At first the womb becomes partially, and afterwards universally hardened during the pain. The cervix becomes rigid and partially dilated, but its dilatation is at first

slow and difficult, and its subsequent progress does not correspond with the pace of the pains. The abortion, with which she is now menaced, is more likely to take place in the febrile than in the apyretic form of rheumatism. Indeed, abortion is not so common an occurrence in the case as might be presumed. In some instances the os uteri has been observed to dilate to the extent of two or three centimeters in diameter, the bag of waters has been formed, and afterwards withdrawn little by little, the orifice closing again, and all symptoms of labour wholly to disappear. As long as the diameter of the os uteri does not reach the extent of five centimeters, we may reasonably hope to put off the labour. These uterine rheumatic pains may simulate labour pains, and lead to the belief that they are really labour pains, while in fact they are not at all so. The characteristic signs of the rheumatic pains, given in the following paragraph, should serve to prevent such a mistake. It is surely to mistakes of this kind, that we ought to refer those cases of supposed protracted pregnancy, and those instances of real labour, begun, and suspended again for weeks and even for months together." P. 289.

"2d. *Influence of Rheumatism upon Labour.*—An attack of uterine rheumatism generally retards the progress of a labour, and sometimes even renders the spontaneous expulsion of the fœtus wholly impossible. In addition to the general phenomena I have described, there are here some special ones to be met with. 1st. It is well known that a normal contraction does not begin to be painful until it has accomplished the greater part of its task, and is in the act of dilating and distending the os uteri: in other words, the true pains of labour do not begin until the instant at which the energy of the corpus uteri begins to overcome the resistance of the cervix. In rheumatism of the womb, on the other hand, the uterine contraction begins to be painful from the start, and before the least power is exerted on the neck; so that the cause of the pain is not in the violent distension of the orifice, but in the contraction itself, in other morbid circumstances, and in other relations of the nerves and contractile fibres of the womb. 2d. In a natural labour, the contractions commence at the fundus uteri, and are directed towards the lower segment. In rheumatism, instead of commencing at the fundus, they commence at the painful point, and run towards the neck in an irregular manner. Again, the pains exist before the contractions of the womb; and, under their influence, when they are established, acquire a high degree of intensity. Their violence sometimes arrests the contractions before they have run through their ordinary cycle. They are, in such a case, brisk, short, and grow less and less frequent. 3d. Towards the close of the labour, when the action of the womb requires to be sustained by the voluntary contraction of the abdominal muscles, the woman, for fear of increasing her sufferings, refrains from contracting her abdominal muscles, which causes the labour to be excessively slow. The patient is in a state of extreme anxiety; the frequent pulse, the hot skin, the thirst, the urinary tenesmus, are much augmented. When the sufferings are too much protracted, she at last falls into a collapse, (which is often a fortunate event for her;) during which the pain is suspended. Under these circumstances, a profuse sweat has been observed, which has had the happiest effect on the rest of the labour. But, in other instances, the womb grows more and more painful; it is rather in a state of permanent contraction, or fibrillar vibration, than of real contraction; the pulse becomes accelerated, and now the woman is under the influence of a metritis which renders the labour extremely painful.

"3d. *Influence of Rheumatism of the Womb on the puerperal functions.*—One may conceive, *à priori*, that uterine rheumatism, by causing irregular or partial contractions of the organ immediately subsequent to the birth of the child, might be the occasion of much difficulty in the delivery of the placenta; but this is not the place to discuss that point.

"In health, after the delivery, the womb contracts, and thus prevents hæmorrhage. But in rheumatism this return of the organ is very incomplete; it re-

mains above the pubis, and is large. The after-pains are now very painful, and continue for a long time. The uterine vessels are less compressed, whence may arise very copious floodings. On the other hand, the state of suffering in which the organ is placed diminishes the lochial discharge, and, the secretion of milk. The persistence of abdominal pain, added to the symptoms of a general reaction, might lead to the diagnosis of a peritoneal inflammation, though none such should really exist.

"*Prognosis.*—Rheumatism of the womb is not a disease capable of causing the loss of the mother's life; but, from the pain it occasions, and the mistakes to which it leads, it nevertheless merits all the attention of the physician. In pregnancy, it may cause abortion; and though it does not generally exhibit itself until the sixth month, it is always unfortunate for the child to be born before full term. We have already remarked upon the unfavourable effect produced by the disorder on the course and character of labour-pains. On many occasions it has led to the necessity of artificial delivery. It may likewise render the delivery of the after-birth difficult, and derange the course of the phenomena that ought naturally to follow after the birth of the child. At this period it is often confounded with phenomena that are purely inflammatory, and is then treated by measures that are hurtful rather than beneficial.

"The disorder is for the most part less favourable when attacking at an early than at a late period of gestation; because it has a more unfavourable influence on the progress of the gestation as yet incompletely established and settled; and also because it has a tendency to be reproduced again and again before the completion of the term, and on account of its disposition to return during the labour, which it is apt to render laborious.

Treatment.—1st. During pregnancy, blood-letting, intestinal revulsives (ipecac. castor oil,) baths, opiated lotions for the abdomen—anodyne potions, sudorific drinks. Such are the measures which have been most constantly successful. In cases where the affection of the uterus had followed the sudden disappearance of a rheumatic pain of some other part, revulsives should be applied to the part first affected. 2d. During labour, the same means are applicable; should they fail, and the os uteri as to its dilatation admit of it, let the delivery be effected by means of turning or the forceps. 3d. After delivery, sudorific drinks, anointing the abdomen with opiated ointments, baths, leeches to the vulva, and when the lochial discharge has failed, ipecac. and opium combined." P. 293.

There is a very meagre and unsatisfactory chapter on redness, simple ulcerations, and eruptions upon the os tincæ, by M. Colombat, which Dr. Meigs has not extended or improved, and we are glad to be able to fall back upon Dr. Bennet's monograph for a full exposition of these diseases. In considering his subject, Dr. B. makes an important primary division into inflammation and ulceration of the cervix in women who have not conceived, and those in whom the uterus has performed or partly performed its function of gestation. The division is sound and practical. These diseases of the cervix are rare in the unimpregnated female—they are very common in women who have had families; in the former, the ulceration is superficial, limited to the mucous membrane—in the latter, the deeper tissues of the cervix become affected, and this part of the womb swells, hardens, and becomes massive and heavy. Secondary affections are produced by these diseases in both classes of women. Leucorrhœa is most commonly caused by them—and we perfectly coincide in Dr. Bennet's remark, that "a confirmed leucorrhœal discharge, whatever be its nature, is accompanied by inflammation of the neck of the uterus." We are constantly

meeting with cases of long-standing leucorrhœa which have withstood the influence of astringents, &c., and which readily yield to treatment when that treatment is applied to the proper part—viz., the inflamed or ulcerated cervix. We do not hesitate to say, that what has been called by authors symptomatic leucorrhœa, is infinitely the most common form of leucorrhœa, and daily experience in the investigation of uterine disease convinces us that the simple benign ulcerations of the cervix are the most frequent structural lesions which occasion it. Prolapse of the uterus in its first degree is another of the secondary effects of the engorged and voluminous cervix.

Inflammation and ulceration of the cervix in women who have not conceived may be strictly local, or co-exist with general vaginitis, as in gonorrhœa. Leucorrhœa may be profuse or scanty; there is lumbar and deep-seated hypogastric pain, and sexual coitus is painful. Sometimes there is a vivid perception of heat at the upper part of the vagina. On examining the uterus by touch, its neck is felt to be hotter than the vagina; it has lost its unctuous feel; it is larger and less elastic. Dr. B. dwells upon the perception by the finger of a slight superficial induration just beneath the ulcerated point, as a correct, though not infallible, guide to the discovery of this form of ulceration. Pressure on the inflamed and ulcerated cervix will often, not always, occasion slight pain. The diagnosis from the finger is to be corrected and rendered more exact by the use of the speculum—when the upper or anterior lip of the cervix will be seen to be the most swollen, and when inflamed presenting a more or less red glistening hue. On its surface may frequently be seen small white or red vesicular or papular elevations—the result of the distension or hypertrophy of the mucous crypts. There are different appearances in the ulcerated surface varying with the stage and character of the ulceration. The os uteri is generally filled with a mass of transparent mucus. Menstruation is generally more painful than in a healthy state. Indeed, the occurrence of the various symptoms of painful and difficult menstruation, when coupled with a leucorrhœal discharge, may be considered in most cases as pathognomonic of inflammation and ulceration of the cervix.

The above is an abstract of Dr. Bennet's account of this disease in women who have not conceived—which he has illustrated with two well-selected cases.

When once the uterus has performed its great function of gestation—its increased vascularity, the softening and development of its proper tissue—with the accidents from child-birth and abortion expose the cervix to inflammation and its products. Dr. Bennet discusses somewhat at length the causes of ulceration after pregnancy. Various local irritants may excite it, as sexual intercourse, aphthæ, &c., and general metritis—occasioned by abortion or labor, localising itself under a chronic form in the cervix and giving rise first to hypertrophy and then to ulceration. While Dr. B. admits this last as a cause, he is disposed to think that the majority of cases begin with superficial ulcerations and abrasions, and that the hypertrophy and general induration of the tissues of the cervix follow as a consequence upon them. We quite agree with him in admitting both these states as causing the disease in question—but, so far as our own observation goes, we think that chronic metritis is the more frequent prelimi-

nary to the development of ulceration. Dr. B. supports his opinion by having noticed in recent cases that the extent and degree of the engorgement coincides with the extent and degree of ulceration—and he explains its frequent occurrence after labor or abortion, not as resulting from chronic metritis or morbid hypertrophy, but from physical injury which the cervix sustains from its rapid dilatation.

"Now it appears to me a necessary consequence of this rapid dilatation of a canal lined by a mucous membrane in a state of integrity, that it must inevitably in many—if not in all cases be accompanied by erosion, laceration and contusion of the membrane. In the majority of women, no doubt, these lesions disappear promptly. Cicatrisation taking place with the greatest ease, under the influence of the retraction of the tissues of the neck and of the reparative phlegmasia which sets up after delivery in the cervix, as well as in the body of the uterus. But if the physiological inflammation of the uterus which follows parturition should prolong its duration and assume a pathological character, if remnants of the placenta or of the membranes left in the uterine cavity give rise, by their decomposition, to an irritating fœtid discharge, it is easy to understand that the lesions of the mucous membrane, instead of healing, will almost inevitably become the seat of inflammation and subsequent ulceration."

It is very obvious that all this is hypothetical, and is not based on observation. Dr. B. does not tell us that in the uterus of so many women who have died either during or shortly after delivery he has found these injuries, for if so, we should ascribe some weight to his argument. But our own experience on this matter is quite the contrary of this; and we do not believe that, as a normal consequence of the first stage of labor, the mucous membrane is lacerated, erosed or contused, or in fact sustains any notable lesion. "Physiological inflammation," "cicatrisation," and "reparative phlegmasia," we discard altogether as terms suitable to the description of the cervix after a natural labor. Nor do we gain much certain knowledge on this matter by Dr. B.'s observation that he has traced ulceration from within the fissure of the os to the surface of the cervix a few weeks after labor. It is more than probable that, in these and such like cases, the error arises from bad practice, such as frequent and rough examinations, pernicious attempts to dilate the os artificially, or the effect of Ergot of Rye when given during the first stage of labor. We have long been accustomed to regard these as fruitful causes of local ulceration and leucorrhœa, and we believe they quite account for the numerous cases which follow parturition. These tears and rents of the lining tissue of the cervix are not so likely to succeed abortion, and we are disposed to regard the ulceration in these cases as a sequel to a congested state of the cervix. There is not a week passes that we do not hear this kind of history from patients whom we see. One or more abortions, or *slight miscarriages* as they are delusively termed, have not been particularly heeded; and the women, being perhaps in indigent circumstances, have immediately resumed the hard and sustained fag of their daily duties. At first, the symptoms of a heavy and congested womb are either unheeded or patiently endured, then after a time follows leucorrhœa, sterility lasts for months, or even years; then the health suffers, and our advice is asked for the whites. Ulceration of the cervix with hypertrophy and induration are the real structural lesions. But the train of causation does not start with the ulceration, but we believe with congestion of the

cervix, which is kept up and increased by walking about, &c., then the womb falls somewhat, the swollen cervix is constantly fretted and rubbed against the vagina, and ulceration is the result. We have at least been accustomed so to explain these phenomena, and we cannot as yet abandon our views to take up those of Dr. Bennet.

The symptoms which attend ulceration, &c., of the cervix in women who have borne children include those which have already been enumerated in the first class of cases. But in addition, we have symptoms arising from the mechanical action of a large heavy cervix, which causes the womb to fall down on the posterior wall of the vagina; hence there is a sensation of weight and heaviness in the pelvis, increased lumbar, sacral and femoral pain; sometimes the rectum is pressed upon, and at others the bladder is interfered with. By touch we feel how low the womb is, the lax moist state of the vagina, and the condition of the os. This part is found usually open, and the ulcerated surface imparts a soft, velvety, mossy sensation to the finger. Sometimes the os is gaping, at others, one or other, or both the lips are fissured and lobulated, the edge of the cervix everted, and the whole mass raised into soft granulations. By speculum, the ulcerated surface is exposed, and the various appearances which are seen in ulcers in other parts of the body, are fairly copied in the cervix of the womb.

Dr. Bennet has related several instructive cases, which mark well the prominent features of this form of ulceration, in its milder and severer characters. Before adverting to the treatment of ulceration, &c., of the cervix we wish to notice one or two observations which Dr. B. has made.

1. Sterility usually accompanies these affections.

2. Ulceration may attack the pregnant womb, and there is no need of alarm in the use of the speculum in these cases, or the application of suitable remedies.

3. A chronic hypertrophy may last after the cure of ulceration, and, if means are not adopted to get rid of it, ulceration will soon recur.

Our author's third Chapter is on syphilitical ulcerations of the cervix, which are very well described, but we must content ourselves with quoting the conclusions Dr. B. has arrived at.

1. The real classical chancre presenting its ordinary physical characters, is excessively rare on the cervix uteri.

2. Ulcerations presenting the characters of the inflammatory ulceration are, on the contrary, exceedingly common in patients labouring under blennorrhagia, or primary, secondary, or tertiary syphilis.

3. Some few of these ulcerations may be primary or secondary, but the very great majority are merely inflammatory.

A short account of cancerous ulceration of the cervix precedes the consideration of the treatment of superficial inflammation and ulceration of the uterine neck.

If inflammation of the mucous membrane of the cervix is ascertained to exist alone, not having passed on to ulceration, the nitrate of silver is found to exercise a most beneficial effect in curing it, just as it does in other mucous membranes, as the conjunctiva, urethra, &c., when similarly affected. The solid caustic may be lightly drawn over the surface, and emollient or slightly astringent injections of lead, zinc, &c., may be used

three or four times a-day. The patient must be kept strictly at rest, sexual congress must be forbidden, and the general health attended to. It may be necessary to re-apply the nitrate of silver two or three times, especially if the injections have been negligently or imperfectly used. Dr. B. speaks of the unsatisfactory way in which these local applications are generally made use of, and our own experience most abundantly confirms it. We have long since ceased to depend on vaginal injections as a means of relieving affections of the cervix, or rather, we should say, we reserve our doubts of their ever reaching this part. Taking the large run of cases in which they are employed, there are very few that are materially relieved by them, and that too because our directions are not properly carried out. There are some cases which would get well without the use of the nitrate of silver, but the employment of agents locally applied, is not only serviceable from the good they do, but also that the upper part of the vagina is more readily cleansed of any morbid secretion which collects there, and which Dr. Bennet thinks perpetuates inflammation and leads directly to ulceration.

When inflammation of the cervix has run into ulceration, the treatment consists of superficial cauterization with emollient and astringent injections, rest, both of the organ and of the system, and attention to the general health. Dr. B. speaks in the most unqualified terms of the value of cauterization.

"The progress of the inflammation and ulceration is, generally speaking, at once arrested by the cauterization. The congestion and redness of the cervix diminish visibly, the granulations become smaller and healthier, and the purulent secretion assumes the character of laudable pus, if it has not presented it before. When the cauterization is suspended, the ulceration will, however, often remain stationary, even if other measures (injections, &c.) are resorted to; and, if left entirely to itself, it is nearly certain to relapse, however advanced the healing process may be."

The two principal caustics are nitrate of silver and the acid nitrate of mercury. The last, which is used extensively in France, "is a powerful caustic, giving rise to a white eschar, which does not fall for five or six days. When the inflammation is intense, the ulceration large, and the granulations redundant or unhealthy, it exercises a very prompt and beneficial influence, generally cleansing and modifying the sore in one application." Besides these two caustics, Dr. B. mentions the hydrate of potash and the actual cautery. The former is used when neither the nitrate of silver nor the acid nitrate of mercury are sufficient for the purpose. It may be used in the same way as the solid nitrate of silver, and afterwards a little water should be injected, or a ball of lint placed against the cervix to defend the adjacent structures. M. Jobert cauterizes nearly all severe uterine ulcerations with the actual cautery, which is scarcely felt, and is free from danger.

In the treatment of that class of cases, where, in addition to ulceration, the central tissues of the cervix have become hardened and hypertrophied, Dr. B. makes the important remark, that, although the former may be cured by the means already indicated, yet, that the presence of the latter state perpetuates the mechanical symptoms, and frequently brings back the ulceration. He finds fault, with great justice, we think, with the

French surgeons for this partial curative treatment, and he lays it down as a rule that "*whenever* general induration exists, it must from the first be taken seriously into account in the treatment." The management consists in strictly enforcing complete rest, the use of tepid or cold hip-baths and cauterization of the cervix, by the acid nitrate of mercury or caustic potash. These measures should be used for two or three weeks, and if not successful, then leeching the cervix should be had recourse to, which, as might be anticipated, is a useful agent in resolving deep-seated inflammation. While this local treatment is being adopted, attention must be paid to the general health, and any attempt to relieve the partial prolapse of the uterus by pessaries be abandoned.

In order to modify effectually an engorged cervix which has resisted all other modes of treatment, the part should be cauterized deeply, either with the Vienna Paste or the actual cautery. A deep eschar is formed by these means, and when it separates, there is a healthy surface, and a great diminution in the size of the cervix. Dr. B. speaks very positively of the value of this plan of treatment; he gives directions about the mode of applying these caustics, and his experience at La Pitié convinces him that there is but little danger attending their use. M. Gendrin has met with a few cases of intense metritis following the cauterization of the cervix: but, although Dr. B. for three years was in the habit of thus treating two or three cases a week, he never saw any serious result from it. Slight hæmorrhage sometimes follows the separation of the slough.

We confess that we are more disposed to differ with Dr. Bennet on the treatment of these indurations of the cervix than with any other part of his book. The directions for the management of ulcerations in general, are very judicious, and by far the best that can be adopted. We have been in the habit for some time past of treating these cases much in the same way as Dr. B. recommends, and we have every reason to be satisfied with its result. We can, moreover, confidently speak of the perfect fidelity of his descriptions, and we do not think he has left much to be added to the subject. With our author, we think the nitrate of silver by far the most useful application to the ulcerated surface, and its effect in relieving the attendant leucorrhœa is in general speedy and successful. Indeed, we have on several occasions seen symptoms of uterine congestion, with some fever, headache and hurried respiration, succeed its use, from the sudden suppression of the flux, and we think it only prudent to take this contingency into account. Warm fomentations, saline aperients, with antimonial wine and rest, will generally relieve these symptoms. We have found a solution of sulphate of copper, or the direct application of the crystal, useful when the granulations are pale and flabby, or in the aphthous ulceration of the cervix. We cordially concur with our author on the great importance of getting rid of the chronic induration which may thicken the cervix after the ulceration is cured; but we really doubt the propriety of forming deep eschars on the cervix for this purpose. We cannot doubt, after Dr. B.'s testimony, that they are equal to the resolution of the induration, but surely it is no trifling matter to implant a cicatrix-tissue in this part of the womb. It is to be remembered that, although sterility may have existed for a long time in these cases, yet that the cure of the ulceration is frequently followed by pregnancy. And we

are quite sure that Dr. B. will agree with us, that a cervix made rigid by a cicatrix is one of the most trying complications in midwifery. It is just the class of case in which the dilating process is sometimes prevented, and nothing is left but either to divide the unyielding tissue, or run the risk of the lower portion of the womb being separated and cast off. With this fear before us, we confess we have not ventured in these cases to adopt the measures advocated by our author. We rely on leeching or scarifying the cervix, and we then attempt, by the use of iodine or mercury, to resolve the induration. Both these remedies may be locally applied as suppositories introduced at night as high as the cervix, and there left to melt, and so keep the part fully under their influence. The internal exhibition of iodide of potassium is also useful, and although we must own that we have frequently found these indurations very difficult and slow of cure, yet we are able in general to prevent the re-appearance of ulceration, and we think our plan of treatment safer than that of our author and the French surgeons. M. Colombat recommends the use of irrigations or prolonged injections, as well as douches, as powerful means for resolving hard and indolent engorgements, and he describes an apparatus for the purpose.

Our space will not allow us to enter much more fully into the remaining chapters of Colombat's work.

In the treatment of cancer, M. Colombat enumerates the endless variety of remedies—frequently of opposite qualities—which have, at different times and by different persons, been supposed equal to the cure of the complaint. In the surgical treatment of it, he discusses the use of cauterization, of which he says, "that, although it is often efficacious in cases of superficial ulceration, it is always useless and even injurious in extensive ulceration and deep scirrhous degeneration. The re-section of the diseased parts is then the only resource which offers any chance of success. There is a long chapter on amputation of the neck of the uterus, in which the various modes of operating are described. These are introductory to a method pursued by the author, in which we have a new and very complex-looking instrument, which so far as we can make it out, is much better adapted for a picture, than for the purpose for which it is designed. M. Colombat does not define the class of cases in which this operation ought to be performed. He surely does not mean it to be employed in the last stages of cancer, and yet we should almost gather this from the little that he says on this important practical point.

On the subject of Physometra, we have a strange contrast in the very unpractical text of Colombat, and some very sensible remarks of Dr. Meigs. The latter is a disbeliever in the notion of gas being secreted by, and retained within, the cavity of the uterus; and he explains the supposed cases of physometra in the unimpregnated female, by the lax and flaccid vagina drawing in air when the female lies down, and expelling it again when the hypogastrium is pressed upon, or the patient sneezes or coughs. The same phenomena constantly occurs, as is well known, after labor.

Colombat describes only two varieties of Polypus—the cellulo-vascular or soft polypus, and the fibrous or hard polypus, of which latter there are two varieties, the pediculated and the sessile. The chapter is a confused one. Dr. Meigs quotes an interesting case from the American Journal

of Medical Sciences, related by Dr. John Davis of Smithville, South Carolina, in which a large polypus was spontaneously expelled two days after delivery without hæmorrhage, the polypus being full of large veins and arteries. In the treatment of polypi by ligature, Dessault's instruments and mode of operating are described at length, and, as usual, we have some three or four of M. Colombat's own instruments figured in the act of doing all that could be desired. Strangely enough there is an omission of any mention of Gooch's canula, or his admirable essay on this subject, and yet, we are quite sure that, for sound discriminating practical knowledge, Gooch's essay is immeasurably superior to Colombat's—just as his simple instrument appears to us to be far better adapted to the removal of polypi than the complicated contrivance of M. Colombat.

In speaking of varices of the vulva as complications of pregnancy, Dr. Meigs tells us that he has had occasion to contend with dangerous crural phlebitis coming on after labor, and clearly taking its rise from the diseased and distended veins of the leg. He lost a case of this kind, in which pyogenic fever, the result of phlebitis, destroyed the patient.

One of the concluding chapters of the work is on Puerperal Fever; and Dr. Meigs supplies a note on the subject, which, for its length and completeness, not only supersedes Colombat's article, but forms a separate thesis on this affection. Dr. Meigs' great object is to inculcate the paramount importance of viewing the disease as essentially inflammatory, and to trust for its cure to bleeding. He is a warm advocate for the views of its nature and relief, which were first promulgated by Dr. Gordon of Aberdeen. Dr. Meigs does not admit of compromise. He will not allow of puerperal poison, or of anything but the local origin of the disease. "Dr. Collins," he says, "evidently entertains the opinion, adverse to my own, that puerperal fever is something over and above the local disease, and constitutional affection resulting therefrom." In the use of bleeding he is equally positive. There is to be no flinching—nothing feeble or timid in its employment—no dawdling with the malady; but, as a rule, he thinks Gordon's standard of bleeding to 24 ounces within the first 24 hours of the attack, a correct one. Of course, Dr. M. varies the amount of depletion to the peculiar circumstances of the patient; but every one understands the unsparing, vigorous use of the lancet, which was formerly adopted in these cases. Dr. M. has for years been in the habit, both in private and hospital practice, of pursuing this mode of treatment; and "I have the satisfaction to say," he adds, "that my just expectations of success, founded on the doctrines of Gordon, have rarely been disappointed."

We are perfectly at variance with Dr. Meigs in our views of the origin and the treatment of this most formidable malady, and our inference is, that Dr. Meigs has been treating in Philadelphia a class of cases which we rarely meet with in London. We gather this from the success which seems to have attended the large depletion which he has adopted. We do not think that even Dr. M. could carry out his views in the cases we are in the habit of meeting in this Metropolis. So deep is the vital depression from the onset of these attacks, that it appears to us quite out of the question to venture on large general bleeding. We have seen this

practice adopted on the same theoretical grounds that appear to have guided Dr. M., but it has invariably been abandoned.

We take our leave of Dr. Meigs, hoping that he will not reject our hint, to write a treatise of his own on the diseases of women.

SAGGI DI CHIRURGIA TEORICO-PRATICA, di *Giuseppe Bresciani de Borsa*, Verona, 1843. OSSERVAZIONI TEORICO-PRATICHE. Di *G. Bresciani de Borsa*. Verona, 1844.

Essays on Theoretical and Practical Surgery. By *Joseph Bresciani de Borsa*. Pp. 448. Verona, 1843. Theoretical and Practical Observations. By *J. Bresciani de Borsa*. Pp. 42. Verona, 1844.

IT is not often that works on Medicine and Surgery by Italian practitioners come to our hands; and, judging from the specimen we have before us, we regret much that we do not see more of them in this country. Dr. Bresciani de Borsa is in large private practice in Verona, and is surgeon to the general and lying-in hospitals of that city. The present works, in continuation of former publications, contain numerous cases in surgery, accompanied with appropriate observations. These latter, manifest a more extensive acquaintance with the foreign literature of the profession (always excepting the orthography of proper names) than we usually find in continental writers. We will proceed to lay a few extracts before our readers.

The Cæsarian Operation.—Two cases are detailed in which the author performed this formidable operation; the one terminating successfully as regards mother and child, the other being followed by death to the parent. The author was called to the first of these, *Angelina de Mori*, ætat. 20, 4 July, 1844; severe labor-pains had existed for two days, and had now become so violent as to threaten rupture of the uterus. The pelvis was much distorted by rickets, tilting the fundus uteri over the edge of the right ileum and abridging the aperture, so as to render the passage of an unmutilated child impossible. The obliquity of the uterus, indeed, was such that the author believes it alone would have justified the operation. The child being still alive, embryotomy, even if practicable, would have been, according to the notions of morals and religion prevalent in Italy, inexcusable. The operation was completed in two minutes, and the wound in the parietes brought together by five or six twisted sutures. By the 21st, notwithstanding peritonitis, requiring bleeding, &c., had supervened on the operation, and the woman being subsequently thrown into febrile action by a severe fright, the wound had quite cicatrized. An attack of phlegmasia dolens next came on, and as soon as she had recovered from this, the house in which she resided took fire, and she was carried through

the flames on the 43rd day after the operation. Notwithstanding all this she did well.

The second case occurred in a dwarf woman, 32 years of age. The description given of her deformed person is such, that one is surprised how any human being could have had connexion with her. Her pelvis resembled that of a child, its antero-posterior diameter not exceeding an inch and a half. A live child was speedily extracted. The poor creature bore the operation with heroic firmness. "During its continuance she kept her face covered, and from her utter silence seemed as if dead; but as soon as it was completed, a crooked arm was stretched out from beneath the clothes towards the operator, and she was heard to say, 'Doctor, now you have finished the operation, *pray give me a pinch of snuff.*' Had I and so many others not been present at this exhibition of Spartan firmness, it could never have been believed, and yet the fact is indubitable." She died a week after the operation during a recurrence of a broncho-pneumonia, to which she had been subject at intervals for some months. On examination after death no inflammation of the uterus, peritoneum, or abdominal viscera, was discovered.

As might be expected in a country where the power of the Catholic Church is so predominant, Dr. B. does not hesitate to recommend the Cæsarian Section as a preferable procedure to the destruction of a living child, and alludes with pious horror to the almost murderous practice of us English, who look upon the saving and baptising a child (he informs us as to one of the children he rescued he lost no time in baptising it and bestowing his own name and that of Julius Cæsar upon it) who has never yet seen the light, as a very secondary matter to the adding additional risk to the dangerous condition of its parent. However, we are pleased to find that, even in that part of the world, the *induction of premature labour* at the seventh month has become a recognized operation. Two cases are here related in which it was practised: one, on account of the presence of convulsions and coma; and the other, in consequence of the contracted state of the pelvis. In both, the membranes were punctured, and the labour-pains commenced in an hour afterwards.

Belladonna in Strangulated Hernia.—"Before I was accustomed to apply Belladonna I resorted to the operation for the relief of strangulated hernia much more frequently than I do now. I am now able to enumerate, both in my hospital and private practice, a long series of cases in which the reduction of the hernia by the taxis, aided by this medicament, has been accomplished. I will not endeavour to explain the manner in which it acts upon the protruded or neighbouring parts, for I can only hazard hypotheses; I will not say with some that it relaxes the tendon of the external oblique, and the internal ring of the inguinal canal, as it expands the pupil: but will confine myself to the indisputable fact, that since I have employed the belladonna, I much oftener succeed in reducing the hernia without having recourse to the knife.

"I employ this formula. ℞. Ext. Belladon. 3ij. Axung. ʒij. M. bene. I anoint the tumour at least every half hour. After a while the pain, and then the tension of the sac, diminish, and the possibility of reducing the hernia by the taxis occurs. The various other means usually employed, as bleeding, baths, cold, tobacco, &c., are not to be neglected; and, although these will frequently not succeed alone, they will do so in many cases when aided by the belladonna."

Aneurism of the Brachial Artery after Venæsection.—Dr. Bresciani de Borsa relates cases in which this was successfully cured by compression made by means of an instrument invented by Prof. Signorini, consisting of two semicircular limbs united by a screw which regulates the amount of pressure which they exert at their padded extremities, applied at opposite sides of the limb to be compressed. A plate is given. The author strongly deprecates the median-basilic vein being chosen for the purposes of venesection, for he has known the brachial artery wounded by even accomplished practitioners during a sudden movement of the patient. He lays down as general rules—"1. Avoid if possible opening the median-basilic. 2. If this vein is prominent, and the median-cephalic, the radial, and the cubital are hardly visible, nevertheless choose one of these last, though its calibre may be smaller. If it is skilfully opened enough blood will be obtained. 3. If the median-basilic is alone visible, and none of the others can be seen or felt, which is however rarely the case, bleed in the middle of the fore-arm, the hand, or the foot. 4. If the median-basilic is the only practicable vessel, which is scarcely possible, conduct the operation slowly, allowing only a sufficiency of the lancet to penetrate the vein to project beyond the fingers, and then, if any sudden movement of the patient does occur, the fingers would prevent the penetration of the instrument through the farther side of the vein." Certainly many practitioners exhibit a fool-hardiness in bleeding which should be deprecated; but our author's fears seem somewhat exaggerated. The accident is usually produced by the perpendicular thrust of the uninstructed pupil; but when the vein is prominent, and the lancet carried horizontally, surely there is little or no danger of piercing through the vessel.

"*Mode of curing obstinate old Ulcers.*—When I have met with very old ulcers, especially those of the leg, which resist every other method of treatment, I have obtained their sound cicatrization by instituting, by means of caustic potass, a new ulcer in the vicinity. I make in a piece of adhesive plaster a hole, somewhat smaller in size than I wish the artificial ulcer to be, and then apply it at one or two fingers' breadth from the old sore. Caustic potass is rubbed on this space until an eschar is formed; and I have constantly observed that, during the consequent inflammatory and suppurative processes, the old solution of continuity, which had so obstinately resisted treatment, has closed up, and the cicatrix has in general continued sound.

"If the healed ulcers had resulted from a disordered constitution, to the appropriate internal treatment, I add either an issue in some usual spot, or place a small portion of wax in the artificial ulcer itself when nearly healed, so as to convert it into a common issue, which contributes much to efficient treatment, as by such prudential precaution I have never seen any mischief produced in the constitution of those who had long been subject to obstinate ulcers. If the ulcer was produced by a traumatic cause, after it has become healed the artificial one may also be cicatrized as soon as possible without any injury resulting.

"In my practice I have cured more than a hundred cases in this manner, and many instances have occurred in the hospital where I have cured ulcers of twenty or thirty years' standing."

Extraction of a musket-ball which had been lodged in the orbit for twenty-four years.—*Felice*, an old soldier of one of Napoleon's armies, was, during an engagement, struck just above the left orbit by a musket-ball, but as a comrade fell dead at the same time at his side, he believed the ball had

rebounded from the orbit and killed him. For more than 24 years after he was continually the subject of violent pains in the left eye and to attacks of cephalalgia—the eye itself projecting much from the orbit. The numerous surgeons under whose care he placed himself from time to time, believing his tale of the rebounding of the ball, afforded him little or no relief, and in 1837, he came to the hospital at Verona. The author, upon examining the case, came to the conclusion, that the projection of the eye could only be caused by the persistence of the foreign body in the orbit, for any exfoliation of bone which the blow might have caused would, in the course of so many years (the projection commencing soon after the accident,) have been discharged or removed by absorption. A portion of bone was therefore at once removed from the orbit by the trephine. The track of the ball was found ossified, excepting at a small aperture, whence issued from time to time a little fluid. After the bone was removed, the ball was felt by means of a probe at the back of the orbit and removed by means of a forceps. The eye now retreated into the orbit, and after some weeks passed into a state of atrophy. The violent pains were quite relieved, and the patient died five years afterwards only, of pleuro-pneumonia. On examination, it was found that the cranial cavity had not been penetrated by the trephine, but opposite to where the bone had been removed was a deposit of osseous substance.

Wound of the Bladder.—A young man, in a scuffle with a companion, was stabbed by him in the hypogastric region with a knife. The instrument penetrated the bladder, but this viscus being distended by reason of his having been drinking, the wound occurred below the peritoneal fold. The urine became immediately diffused about the neighbouring parts, and as soon as he was brought to the hospital a catheter was introduced, through which a great deal of both blood and urine flowed. The external wound in the abdomen was closed by adhesive plaster; and, in the course of the cure, bleeding was practised. His recovery was rapid, and so complete, that he was enabled to be received a soldier. He died in a few months of some febrile affection, the cicatrix continuing sound.

Wounds of the bladder by cutting instruments are rare, for Larrey only mentions one case, although those arising from fire-arms are frequent. Samuel Cooper, however, mentions a case much resembling the above in his Dictionary.

Small-pox in the Fœtus.—A young woman, suffering from small-pox, was delivered of twins in the hospital, one of them having numerous finely-developed pustules, while the other was entirely free from the eruption. "What will the deniers of the possibility of contagion acting upon the fœtus *in utero* say to this case? I would explain the fact of the one child not becoming affected by the absence of predisposition."

"*Creosote in obstinate Ulcers.*—This application for indolent and obstinate ulcers seems to be going out of use. I do not know why, for, in my own practice, so useful do I find it, that I may call it a sovereign remedy. This is the formula I use—℞. *Creosote* gtt. vi., *Aq. font.* ℥iv. M. I increase the quantity gradually to 10 or 20 drops. Whoever has attended my hospital practice must have observed with what celerity a change in the pathological condition of old,

foul, indolent, ulcers is brought about. It is decidedly the best flesh-producer (*sarcotico*) known in surgery in these morbid affections. Has the remedy some specific action on the capillaries? for in even 20 hours I have seen a foul surface covered by luxuriant granulations, and old, indolent ulcers become benign and active. Certainly the surgeon must always reserve the application for old and indolent ulcers; for if he orders it in active, inflammatory, and painful ones, great mischief will result; and I believe it has fallen into disrepute, because it has so frequently been prescribed in conditions which contra-indicated its employment."

Urinary Fistulæ.—Dr. Bresciani de Borsa states that he has tried the plan of leaving a catheter in the bladder, and that of allowing the urine to pass along the canal; but finds there are strong objections to both. The constant presence of a catheter induces chronic cystitis, inflammation of the neck of the bladder, or even a fistula of the organ. On the other hand, left to itself, the urine prevents the union of the edges, of the fistulous opening. A mixt method is the best, and this consists in passing, the instant the urgency for voiding urine is felt, a conical silver catheter cut off at the end, so as to leave the apex open, and thus withdraw the urine from the bladder without allowing it to come in contact with the fistula, and yet avoid the dangers consequent upon the retention of the instrument in the bladder.

LITHOTOMY.

Nearly one-half the work is occupied with this subject. The author details at great length the symptoms, modes of detecting, and prognosis of stone in the bladder. After dwelling minutely and ably upon the anatomy of the parts concerned, and describing all the various operations which have been devised for the removal of the calculus, he presents us with an account of his own mode of procedure, which he states to have been attended with an amount of success which seems to us almost incredible, much as we are disposed to rely upon the veracity of so industrious and candid an observer. This operation is, in fact, a modification of that of which Signor Manzoni, of Verona, published an account in 1808; and Dr. de Borsa, declares that, of *one hundred cases operated upon by that practitioner and himself, only one has died:* and that from causes irrespective of the operation! Manzoni's operation consisted in cutting into the spongy portion of the urethra only, and then dilating the bulbous and prostatic portions sufficiently with the finger to admit of the introduction of the forceps and the removal of the stone. Dr. B., however, judging it more reasonable to cut into the more dilatable portion of the urethra, carries his incision from the bulb to the prostate, and even unavoidably scarifies the latter when it advances more than usually forwards. As the admission of such an operation depends upon the dilatability of the prostate being satisfactorily proved, the author advances several reasons for this, founded on the nature of its anatomical structure, and cites various facts observed by himself and others. He then details the various steps of his operation:—

"Having placed the patient in the usual position, (it is much preferable to

retain him in this by means of assistants than by ligatures, for the mere ceremony of adjusting these, causes a great dread to the patient which may alone suffice to induce a low and fatal form of fever,) introduced the catheter, and made a sufficiently large external incision, I open, with a small, lancet-pointed, double-edged, strong scalpel, the whole of the membranous portion of the urethra, so as to expose the instrument to the extent of about 10 lines, in doing which it may in some cases easily happen that the apex of the prostate is also cut, although in the case in which the patient died it was found entire. I now take hold of the handle of the catheter, and, passing my left fore-finger into the wound, feel the groove exposed, and as others would pass some form of gorget through the prostatic portion of the urethra and neck of the bladder, I only introduce my finger into the bladder, being certain it never can make a false passage, since I keep it in contact with the metallic instrument. I take care, nevertheless, not to pass my finger along the groove, because I should then thrust it against the internal or posterior angle of the wound, and then against the great bulk of the prostate. Scarcely do I touch the groove before, instead of following it, I pass my finger upon the right side of the staff (as regards the patient) and carry it quietly and without any obstacle into the bladder. One of the advantages of this modification is, that it enables me, in most cases, to come at once in contact with the stone.

"I then remove the staff, still however retaining my finger within the track of the incision, and gently moving it about in a semi-rotatory manner, effect a much greater dilatation of the prostatic urethra and neck of the bladder. Next, I pass in the forceps behind my finger, and seize the stone. It has to pass along a track of only from 12 to 15 lines, or even less, since the inverse cone formed by the forceps approximates the neck of the bladder and urethral aperture, for which reason the space is shorter and more easily dilated. I remove the stone with two, or at most three, semi-rotations, performed with circumspection and care along an axis, which, commencing at the centre of the bladder, should pass through its neck, and following the centre of the prostatic urethra, terminate in the centre of the perineal aperture.

"I am in general not more than a minute after opening into the urethra before I have extracted the stone, and the operation has always succeeded in my hands. Safety, simplicity, and celerity, I have already said are desiderata of every operative process, and I am in a condition to prove that they attach to this one recommended by me. All I employ are simply a bistoury and the forceps—*simplicity*, surely, in comparison with the multiplicity of complicated instruments which has been recommended in the various and numerous modes of performing *Cystotomia*. By passing my finger along the staff, I secure that *safety* which is not usually a characteristic of operations for stone. It is related that even the celebrated Scarpa passed the gorget, which was looked upon as the palladium of his fame, in between the bladder and the rectum. The same thing has occurred to many otherwise skilful operators. * * * * * I am certain of not injuring either the pudendal artery, the prostatic venous plexus (so frequently in a varicose condition in the aged,) the body of the bladder, or the rectum. Farther, by the preservation of the whole, or nearly the whole, of the prostatico-vesical canal, inflammations between the rectum and bladder are avoided, inasmuch as urinary infiltration is prevented, in consequence of the prostate not being divided. * * * * * The *rapidity* of the operation is shown by the fact, that instantly after I have opened the urethra I have the stone in my hand; and any one who has even once performed this operation, will bear witness to my assertion. I may observe that it seems almost impossible that so many operators, at all periods, have written so much, and cudgelled their brains to invent new operative procedures for Lithotomy by deep prostatico-cystic incisions, while, with a simple *urethrotomy*, the desired end may be obtained, as I can prove by so many cases."

The author next enters into a detailed historical account of the twenty or thirty modifications of the operation of lithotomy which have been at various periods devised, exhibiting the particulars in which his own may be advantageously compared with these; and terminates his Essay with a Report of the discussion upon the *dilatability of the prostatic portion of the urethra* which took place in the Medical Section of the Scientific Congress held at Padua two or three years since. At this, several eminent practitioners expressed doubts of the feasibility and safety of his proceedings; but he truly observed, that facts are far beyond mere theoretical objections. Upon it being insinuated by some that success attendant upon the removal of small stones ought not to confer approval upon a method, Dr. B. replied by exhibiting large calculi which he had removed. He stated, however, that neither this nor any other form of operation can be universally practised, and that the bi-lateral operation of Dupuytren is best adapted for stones of great magnitude, and the hypogastric operation when this is excessive. So, too, where the prostate is much diseased, the hypogastric operation may be more eligible. The dilatability of the prostatic urethra, independently of incision or laceration, however, was considered so doubtful by many, that a Commission was appointed to conduct some experiments on the dead body. To conclusions drawn from such a source, the author repeatedly enters his protest. He maintains that the dilatability of the prostate in the living body is mainly due to its vital properties, and that laceration is far more likely to be produced in the mere organic structure of the dead body. However, the Commission was formed, and he consented to exhibit the celerity with which the finger and forceps might be introduced into the bladder, but declined allowing the soundness of his practice to depend upon conclusions drawn from circumstances so different to those prevailing in the living body. Here he only exercised a sound discrètion. In the two instances experimented upon, upon examination afterwards, the prostate was found to be only slightly lacerated to the extent of two or three lines, although the forceps had been introduced and the stone removed by the aperture. This for the dead body; but the author reiterates that, in the living subject, a division of even the apex of the prostate is exceptional and unessential, and that, in the only case in which death allowed of an examination being made, the part was found entire, as testified by competent witnesses, although the stone was 14 lines in diameter. He observes, moreover, of those who persist in maintaining he must lacerate the prostate in dilating it, that they must find great difficulty in explaining Manzoni's great success, who only opened into the spongy portion of the urethra, leaving entire, between the end of his incision and the apex of the prostate, the bulb and the membranous portion of the urethra, and extracting the stones without any lacerations whatever, and with uniform recoveries. The author quotes Dr. Willis's opinion of the suitableness of an operation conducted on these principles, an account of which he gives in his work on Stone, under the appellation of *Lithectasy*;* but, as we find Dr. B. is a reader of the *Medico-Chirurgical Review*, we may as well inform him

* Med. Chir. Rev., April, 1842, p. 490.

that the authority of Dr. Willis, whom he designates as "*l'illustra litotomista,*" is not of much weight here in this matter. He is doubtless not aware that physicians do not operate in this country; and the performing operations and the suggesting them are mighty different things. Dr. Willis' work on the Stone is a mere compilation. Other corroborative but incidental authorities are cited as recommendations of the practice advocated; but we have no space for adverting to them. The position the author occupies as one of the *élite* of the profession in his own country, his great experience, and evident candour, lead us to accept his statements as well-grounded, and to hope that they will be put to the test of experiment among ourselves.

These "Essays" form a valuable contribution to surgical practice and literature, and are abundantly illustrated by lithographs.

PRACTICAL OBSERVATIONS ON THE PRINCIPAL DISEASES AFFECTING THE HEALTH OF EUROPEAN AND NATIVE SOLDIERS IN THE NORTH-WESTERN PROVINCES OF INDIA, &c. By *W. L. Macgregor*, M.D., Surgeon, 1st European Light Infantry. 8vo., pp. 316. Calcutta. Thacker and Co.

WE introduced Dr. Macgregor to the acquaintance of our readers, in our Number for last July, as the principal writer in the new East India periodical, entitled the Quarterly Medical and Surgical Journal for the N. Western Provinces; and we then gave a variety of extracts from it, to point out the line of treatment which, according to his statement, has proved so successful in a variety of the diseases of India, more especially in Bilious Remittent Fever, Epidemic Cholera, and Dysentery. The present work of our author contains numerous illustrations of the same subject; and, as his practice—which is in some respects original—seems unquestionably to have been of decided advantage in many (we do not say all) cases, it may not be without profit that we briefly recal the attention of our readers to its leading features.

Dr. M. most emphatically, and over and over again, asserts that a uniform and indeed an essential feature and pathological character (as ascertained by dissection in fatal cases) of Fever—including the intermittent and remittent forms—epidemic Cholera and Dysentery, is a distended and obstructed state of the gall-bladder; and, basing his therapeutic views upon this foundation, he with great earnestness maintains that the leading object in their treatment is to unlock the pent-up bile, and to eliminate and discharge it from the body.* He states, and with truth certainly, that the

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* Dr. Mouat, whose recent pamphlet we have noticed in a subsequent part of the present Number, observes that, "it is well known to all who have had a practical acquaintance with this fearful pestilence, that not an atom of bile is visible in the *ejecta* of a true Cholera case. The gall-bladder in fatal instances is usually found distended with bile, and the patient may in general be considered as doing well, when the character of the excretions becomes changed."

alarming symptoms in each of these epidemic diseases never subside until there is the appearance of bile in the stools; and that, as long as the alvine evacuations consist of congee-like water, slime, or mucus, we cannot with propriety recognise a decided amendment in any case, however much the violence of the other symptoms may have abated. The action of Vomiting, that so generally occurs in the early stage of the morbid process, is to be regarded as an effort of Nature to effect the dislodgment of the obstructed bile; great caution should therefore be used in hastily checking this salutary *nisus* of the system. Now, this is a most important practical point, and one that requires to be well considered by every medical man in the treatment of all pestilential or malignant epidemic diseases. A vast deal of harm has been done by giving large doses of opium, or by the use of other sedative means—at the commencement not only of spasmodic cholera, but of various fevers, European as well as tropical—with the view of checking the severe vomiting that is often present at first. This is unquestionably a most erroneous and hurtful practice. Indeed, it may be laid down as a universal rule, in the management of all pyrexial diseases without exception—and Cholera, we may remark, is regarded by our author, as it has been by many preceding writers, as a concentrated and overpowering form of Malarious Fever—that spontaneous vomiting, at the onset of a febrile attack, should be promoted for a time, and seldom or never suddenly arrested. With this view, the patient should be encouraged to drink two or three tumbler-fuls of hot water, to which some common salt or sal volatile has been added; and, should these means not succeed in bringing on the rejection of some bilious matters from the stomach, it will very generally be prudent to administer a full dose of Ipecacuan without delay. Sydenham and all the old authors of repute give this advice; it is one of sound practical value.

It is well known, too, that some of the best writers on India Cholera have strongly recommended the use of powerful emetics in the treatment of this formidable pestilence; and we can bear witness, from the *results* of our own experience, of the propriety of the practice. Dr. Macgregor is of the same opinion. The very large dose of Croton oil, which he usually exhibited, viz., five drops, had generally the effect of at first increasing the vomiting; afterwards, it appeared to quiet and subdue the excessive irritability of the stomach. This might be owing to the opium given at the same time; but we may take this opportunity of stating, that by far the best means to allay spontaneous vomiting, when it occurs in the course of various diseases, is to make a strong impression upon the stomach, by giving a full dose of Ipecacuan. Cases are continually occurring to us where this practice has succeeded, when every means to check the symptom by effervescing draughts, opium and so forth, had entirely failed. We might add that, in many cases of Diarrhœa, the action of a decided purgative will often serve to arrest the intestinal discharge more effectually, as well as more safely, than any astringent.

That Dr. Macgregor has greatly exaggerated the value of his favourite remedy—large doses of Croton oil, alone or combined with Opium or Henbane—in the treatment of East India Cholera, we have no doubt. Such extraordinary efficacy as he claims for it—on more than one occasion he tells us that it has never failed—at once begets a suspicion as to

either the candour or the experience of the writer. But, making allowance for a considerable amount of extravagance in his praise, we have no hesitation in saying that we should certainly be inclined to give a fair trial to the practice which he so earnestly recommends. He is favourable to the employment of venesection in the very early stage of the disease, before the characteristic symptoms of prostration are fully developed; but often, we need hardly say, there is no time or opportunity afforded for the employment of this remedy. With respect to the use of direct emetics, we find the following observations:—

"Emetics, particularly Tartar Emetic and Ipecacuanha, have been extolled; and certainly the former medicine has been found, in many instances, capable of removing cholera, when free vomiting could be induced by persevering in its use. Ipecacuanha, in sporadic cases, is often useful in arresting the disease.

"The effect of emetics both in cholera and bilious remittent fever is the same, namely, that of giving a shock to the system, whereby the gall-bladder is occasionally emptied, which is the first step in the cure of both diseases, by whatever means accomplished." P. 67.

But his chief reliance is upon Croton oil and Opium in large and repeated doses. As we have already described the mode of exhibiting these medicines in our notice of Dr. M.'s writings, in the new East India Journal, it is unnecessary to enter into particulars at present. We shall only quote the following remarks as to the action or physiological effects of Croton oil when given in large doses:—

"Many vegetable purgatives act as sedatives in large doses, while in smaller ones they are irritants; this is particularly observable with regard to Croton oil, a substance usually given in the dose of half a drop, or a minim or two at most; in such doses it acts as a drastic cathartic, causing great uneasiness, and often nausea and vomiting; if the same medicine be administered in the dose of five drops, it acts as a direct sedative, and a powerful purgative; and as such is an invaluable medicine in the treatment of diseases of warm climates, particularly biliary ones. Another medicine of great powers as a sedative, tartar emetic, may be adduced; its wonderful effect, as a sedative in diseases of the chest, and affections of the brain depending on increased irritation, or even inflammation, has been long acknowledged; and in Cholera its use has often been marked, and successful when persevered in until free vomiting has taken place." P. 13.

We must not forget to mention that our author is a decided non-contagionist as regards the Epidemic Cholera of India. His name must therefore be added to the list of those gentlemen whose views upon this question Dr. Copland, in the last number of his Dictionary, strives to shew are utterly untenable. For our own part, we must confess that we are by no means satisfied with the accuracy of the doctor's elaborate reasonings upon not only this, but upon some other points in the history of the Cholera pestilence. We may briefly allude to one of these. Dr. C. argues that it is a disease essentially *sui generis*, and that it is quite distinct from the sporadic malignant Cholera, such as was wont to be met with in India before the outbreak of the great epidemic of 1817, at Jessore in the delta of the Ganges, and which is never altogether absent in some part or another of the peninsula.

We see no good reason for joining with him in this respect; nor can we admit the essential difference of diseases which may exhibit exactly the same phenomena alike during life and after death, merely because the one

may prevail and spread epidemically, and the other occurs sporadically, or within a very limited district. That the symptoms of the two diseases are nearly the same may be fairly inferred from Dr. Copland's own definition of spasmodic Cholera—the Mort de Chien of French writers. Here they are—*Vomiting and purging of watery matters, without any appearance of bile; spasms, violent and extending generally through the frame; speedily followed by sinking of the powers of life.* When, in addition to these features, we are told that, in some severe cases, the pulse can scarcely be felt within four hours from the attack, and that patients often die in the space of ten or twelve hours, it seems scarcely reasonable to maintain that the disease is essentially different from that epidemic form of which we have heard so much during the last 25 years, and which visited our own shores in 1831-2. Besides the argument of the close resemblance in the phenomena of the alleged two diseases, it deserves notice that most East India practitioners certainly did not regard the pestilence of 1817 to be a *new* disease, as Dr. Copland all along maintains. Our limits will not, as a matter of course, permit us to discuss this question at present. So strongly convinced, however, is our learned opponent of the truth of his opinions upon this point, that he wishes (vide our last Number, page 147) to abolish the appellation of Cholera, as applied to the epidemic or pestilential form, altogether, and to substitute the somewhat strange one of "Asphyxia pestilentia" (pestilens or pestifera?)* Medical men are seldom fortunate in their coinage of new names; and certainly the present instance is one of the least successful. That proposed a few years ago, in the Madras Journal, by Dr. Murray, "Adynamia algida," or "Acholera adynamica," is not much better. Why not Pestilential Cholera?—especially as we have seen that, although the generic name may, strictly speaking, denote a profluvium of the bile, there is admitted to be, in one of Dr. Copland's own species, "vomiting and purging of watery matters, *without any appearance of bile.*"†

From Cholera we pass on to notice briefly the treatment recommended by Dr. Macgregor in the Remittent Fever of India. The following extract presents a summary of his views:—

"When first seen, and the earlier the better, give the emetic draught, or when high arterial action is present in a young subject, bleed according to the age and effect produced: then give the croton pills, and watch the result; if Apyrexia be produced and no heat of scalp remain, give the quinine in a ten-grain dose. If the tongue be foul and loaded, exhibit the senna and salts, and for the heat of scalp apply leeches: should these fail, the probability is, that the essential cause is not removed, and the croton oil is to be repeated, and united in such cases

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* This is the first of the pestilences described by Dr. C.; the other two being Yellow Fever, and the Plague. The former of these receives the appellation of *Pestilentia hæma-gastrica;* a curious circumstance certainly, when we consider that its specific distinction points to two of the most characteristic features of Epidemic Cholera—viz.: the state of the blood, and that of the abdominal viscera.

† It may be worthy of notice that the Greek word χολερα signifies a water-pipe or gutter to carry off water, as well as a disease accompanied with a discharge (ρεω) of the bile (χολη.)

with not less than five grains of extract of henbane. The second dose will generally remove the essential cause, but if the brain be involved, the head must be shaved, and the leeches repeated, the number varying from eight to twenty; purgative enemata containing Ol. Tereb. are to be injected for emptying the rectum in very severe cases; and where a little heat of scalp remains the quinine may be given, but combined with the croton oil, which often, under these circumstances, produces free vomiting of bilious matter from the stomach." P. 253.

In a subsequent part of his work, our author insists more earnestly upon the necessity of the free use of the lancet whenever there is pain or decided uneasiness in the region of the liver, or when the scalp is hot, and the cerebral symptoms indicate arterial over-action or venous congestion of the encephalon. After emphatically reminding the reader that he only uses Croton oil "as a means of removing the essential cause (the distended and obstructed state of the gall-bladder,) and that other means must be employed for the effects produced by the action of that cause on the system," he goes on to lay down certain rules for the administration of Quinine:—

"No matter what the state of the tongue may be, or whether the patient has a bilious look, or even if the bowels be not moved freely, provided a complete Apyrexia be present, the quinine must be given in a large dose, or, if the time will permit, a purgative draught may be given, followed in one, two, or three hours by the quinine. This injunction applies more particularly to severe Bilious Fever, in which an exacerbation is liable to be followed by fatal results. And as the exacerbation occurs most frequently as the heat of the day advances, the purgative, when indicated, is to be given early, and quinine to the extent of ten grains before 8 A.M." P. 253.

"But when the Apyrexia is not complete, as indicated by the heat of scalp, and state of the pulse and skin, but particularly the first, quinine is not to be administered, unless in some very severe cases, where death by effusion is sure to follow an exacerbation; and here the croton oil must be united with the quinine, in the proportion of five drops of the former to ten grains of the latter; but even here the case must be watched, and if the cerebral symptoms be increased, no time is to be lost in removing them by leeches, shaving the head, cold, particularly ice and blisters; while purgative enemata are thrown up: this is a case which will require great attention, and the medical officer should never leave his patient, until the danger is over." P. 252.

As a specimen of Dr. Macgregor's practice, we shall give one of his cases reported in the Appendix.

"Gunner Patrick Kassick, 2nd Troop, 1st Brigade, Horse Artillery, æt. 23. Admitted 12th July, 1842, with head-ache, and other febrile symptoms.

Mittatur sanguis ad lb. j.
Sumat Haust. Emet.

"13th. Feels better: slight head-ache: skin moist: pulse natural: tongue loaded.
Sumat Ol. Croton, gtt. v.
Ext. Hyosc. gr. ½.

"P.M. Has head-ache, and there is great heat of scalp: pulse full and hard: bowels open.
Repet. Vanæsectio, et si dolor adsit
Abradatur Capillitium et
Applic. Lotio frigida,
Injiciat Enema Domest. post tres horas.

"14th. There is some heat of head, and slight pain; feels better: some ac-

celeration of the pulse, and increase of temperature: tongue whitish, and loaded in the centre. Applic. Hirud. xij. temporibus;
et habeat Pil. Croton. C.

"P. M. Is now bathed in perspiration, but was very feverish and restless during the day; the medicine produced several stools: has no head-ache now, nor local pain. ℞. Aq. Acet. Ammoniæ ℥ iv.
Aquæ ℥ viij. M.
Sumat ℥ j. omni horâ.

"15th. Is now perfectly cool.
Sumat Sulph. Quininæ gr. x.
et habeat Mist. Quin.

"P. M. Has not had an exacerbation of fever, but complains of head-ache though the scalp is tolerably cool.
Applic. Hirud. xij. temporibus.
Repet. Pil. Croton C.

"16th. Bowels freely moved. Cont. Mist. Sulph. Quininæ.

"17th. Complains of great weakness: no febrile symptoms.
Cont. Mist Quininæ.

"18th. Appetite improving; complains only of debility. Cont.

"20th. Discharged.

"N. B. The lancet was employed on account of the head symptoms, which it subdued, but the fever yielded to the Croton Oil." P. vii.

We may here remark, that the croton oil in large doses has been used with great advantage in the remittent fever of the West Indies; it was first recommended, we believe, by Dr. Tegart, Deputy Inspector of Hospitals, about 18 or 20 years ago. Dr. Macgregor was probably not aware of the circumstance.

The following extract from a letter of Dr. Hacket—in the number of the Medico-Chirurgical Review for Oct. 1832—will probably be read with interest by him as well as by other readers. After having alluded to the "astonishing and wonder-working effects" of the croton oil in his own experience, Dr. H. quotes this passage from a communication addressed to him by surgeon Cunningham:—

"Five cases of remittent fever were treated in the Regimental Hospital during the quarter. Two cases were also treated in quarters, of peculiar severity, viz., one officer, Major Gibson, of the 86th—the other, the wife of the Serjeant Major. These were, in particular, aggravated cases, attended with intense degree of gastric derangement at the commencement of the attack. In the whole of these cases, the beneficial effects of the croton oil, in suddenly and effectually arresting the violent irritability of the stomach, and in alleviating the urgent febrile symptoms, were particularly apparent; the quantity administered was *four drops* for the first dose, assisted by active purgative enemata and warm bathing, or the cold shower bath—the latter was found the most beneficial: a second dose of the oil, to the extent of one-third to *two drops* was in some of the cases found necessary. The sulphate of quinine, in doses of from 10 to 12 grains daily, was had recourse to at as early a period as circumstances would permit. Venesection was in none of the cases had recourse to; no instance of protracted convalescence occurred. There is every reason to conclude that, had the excessive irritability of stomach not been arrested by the use of the croton oil, and had the symptoms been combated, as formerly, by the use of other remedies, black vomit, with exhaustion, must have soon supervened, with a fatal termination."

It appears, therefore, that the bold practice of our author has been, in some measure, anticipated.

Our readers may naturally wish to know Dr. Macgregor's opinions as to the effects of the liberal administration of Calomel in the treatment of the Fevers of the East Indies. On the whole, he appears to be not very favourable to the employment of this, unquestionably much misused and often dangerous—when indiscriminately or immoderately given—remedy. His words are:—

"Calomel is not a medicine to be lightly dealt with, and its power, both as a sedative and purgative, there is no man more inclined to concede than myself. I had used it for years in the cure of Fever and Dysentery, and in the latter with great success; but I could not be blinded to its pernicious effects on the constitution; and when, in addition to these, I found that the drug failed to cure severe cases of Bilious Fevers, while, from some idiosyncrasy, it aggravated certain cases of Dysentery, I was obliged to view it with suspicion, and endeavour to find substitutes which were not only equal, if not superior, to calomel in curing these complaints, but which possessed the advantage of not destroying the constitution, or inducing such serious disorders as Dry Gangrene, Ulceration of the intestines, and incurable Dropsies.

"It is only when we trace the pernicious effects of calomel from first to last, that we are horrified at the uncertainty of such a powerful remedy." P. 235.

With respect to Intermittent Fever, we do not find much in Dr. Macgregor's work, that calls for notice. His explanation of the cause of the rigors in the first stage is ingenious, if not satisfactory:—

"When speaking of hepatic complaints, I have observed that rigors are often witnessed in cases where the gall-bladder has been impacted with diseased bile for years; and this circumstance leads me to infer, that the stage of rigor in Intermittent Fever is the effort of Nature to expel the contents of the gall-bladder, and the succeeding hot stage is the really diseased action, which, when terminating in the sweating, is removed, whereas, when the rigors are slight, or do not occur, as is often witnessed in Remittent Fevers, the efforts of Nature are ineffectual in throwing off the disease, and a distinct intermission does not occur, but only a partial remission: experience would seem to confirm this view of the subject, both with regard to the effects and the cure of Fever." P. 247.

With respect to treatment, it is summed up in a few words: "The essential cause is to be removed by the Croton oil, and the accession of the intermittent, and the exacerbation of the remittent, paroxysm prevented by Quinine; the effects produced on the system being combated by the lancet, leeches, blisters, cold, and other antiphlogistic measures."

Dysentery.—In this disease our author most energetically contends that there is invariably the same morbid condition of the biliary organs present as exists in Cholera and Fever; and that the treatment of it, although requiring considerable modification in some respects from the highly inflammatory and irritated condition of the bowels, should be conducted upon the same principles.

"I had assumed," says he, in the latter part of his work, "as the essential cause of Dysentery, the distended gall-bladder, and the absence, in consequence, of cystic bile in the colon: nothing has occurred to shake this opinion, for in every fatal case of the disease, the gall-bladder has been filled with dark viscid, or ropy bile; or, if the bile appeared in the alvine evacuations, it was a thin greenish fluid, being in fact the hepatic bile not subjected to the peculiar action

of the gall-bladder. Such a fluid does not appear capable of producing the soothing, healing action of cystic bile." P. 265.

And again :—

"From the absence of the bile in the colon, its contents become acrid; the mucous coat is irritated, and the bowels, instead of propelling the fæcal matter, puts on a diseased action called Dysentery, as evinced by griping, straining and frequent alvine dejections of thin whitish matter; the same tinged with blood, or the latter mixed with mucus and slime; all these appearances may occur in the first or irritative stage, and still no inflammation be present; if these slight symptoms be overlooked, more particularly what is called Diarrhœa, or thin whitish stools, the irritation passes to the stage of inflammation, and this often speedily, in the case of Europeans; even here the disease is under control by means of the lancet, sedatives, and counter-irritants; if not checked, ulceration succeeds inflammation, and sooner or later involves the whole gut from the cœcum to the rectum, terminating in death." P. 263.

According to Dr. M.'s observation, Dysentery may be said to arise from the same (or a very similar) malarious poison or miasm which produces Remittent Fever. The two diseases often appear at the same time; while, in other instances, they alternate with, and succeed each other. "Cholera, Fever, and Dysentery are but links of one chain." The great tendency, however, to inflammation in the last disease, demands the more prompt and free use of the lancet than in the other two; but the practitioner must never forget, in his antiphlogistic treatment, the paramount importance of evacuating the gall-bladder and promoting the discharge of the bile into the bowels. An emetic should be given at first; this may be followed by a dose of Castor oil combined with tincture of Henbane. After the bowels have been unloaded, an opium pill, either alone or united with quinine, should be administered. If we have reason to believe that the obstructed state of the gall-bladder continues, five drops of Croton oil with five grains of extract of Henbane will be found useful. In acute dysentery, large doses of Calomel, in combination with Opium, are unquestionably often of great efficacy in subduing the violent irritation of the bowels; but, in the chronic form of the disease, this medicine is decidedly injurious, inducing rapid emaciation, and, in too many cases, fatal consequences. For the last six or seven years, Dr. M. seems to have discontinued the use of calomel nearly altogether in the treatment even of acute Dysentery; and we believe that we are not far from the truth in saying that our medical officers, in the present day, do not order a tithe of the quantity of this often-abused medicine in the diseases of India, that was generally given twenty years ago.

To illustrate our author's usual treatment of acute Dysentery, we select the following brief report of one of his cases.

"Corporal John Woods, No. 3rd Company, 1st European Light Infantry. Æt. 34. Admitted 16th July, 1843.

"July 16th. Since yesterday he has had dysenteric symptoms, stools frequent, bloody and mucous, attended by great tenesmus; on firm pressure, there is pain felt in the ascending colon and also in the transverse, but none in the cœcum nor in the descending portion: tongue red; no white crust nor even a white spot.

Mittatur Sanguis.
Sumat postea Haust. Sedativ.

"17th. The bleeding removed the pain, but, in taking the draught, he was seized

with severe spasms and rigidity of the muscles: vomited and the bowels were freely moved: stools fæcal, light-coloured: he took the Pil. Croton & Opio last night, and had some straining with the evacuations which consisted of serous matter, without blood or mucus.

Repet. Pil. Croton. gtt. v. Opii gr. iij.

"18th. Has no griping or tenesmus.

Sumat. Opii gr. iij.
Sulph. Quin. gr. v.

"19th. Bowels quite regular.

Nulla Med.

"20th. Discharged." P. cvii.

We now proceed to notice some of the other contents of his volume.

Functional Diseases of the Liver.—The following is the description which our author gives of Congestion of this organ:—

"The individual has a sense of weight in the right side, sometimes increased on full inspiration, but seldom on pressure; there is not actually pain, but a feeling as if some enlargement had taken place; the sensation is generally confined to the region of the liver, extending from the scrobiculus cordis towards the spine: when this condition of the liver has existed long, a yellow tinge of skin is not an uncommon occurrence, so that the individual is termed bilious; he becomes weak, and dislikes any exercise, either of body or mind, occasionally he feels chilly, at other times heated; with a dry skin, and the secretions become scanty, particularly the saliva and urine. The mouth is parched, and the phlegm becomes thick and inspissated: in the aggravated form, there is difficulty in lying on the left side; and in severe cases, the individual lies either on his back or right side; when attempting to turn from the latter position, he feels a weight in his right side, and is often led to suppose that the liver is diseased; that its volume is increased in bulk, there can be little doubt, from the additional quantity of blood in the viscus." P. 125.

The patient becomes more and more distressed with distinct rigors, usually accompanied with much disorder of the stomach, and with great uneasiness in the region of the liver: the occurrence of these rigors is apt to alarm the physician and make him suspect impending suppuration. They often indicate an effort of Nature to remove the dark inspissated bile from the gall-bladder; "for in old cases," says Dr. M., "I have invariably witnessed a severe rigor of this kind to be followed by the dejection of dark bile, more especially if any purgative has been administered." The bowels are very generally sluggish, and the evacuations are never quite healthy; they are either very dark, perhaps almost black, or they are clay-coloured. The head almost always suffers more or less severely; excessive drowsiness is a very common symptom. At other times, the patient can get no sleep; he is restless, and irritable, his temper becomes peevish, and his mind incapable of application to any subject. Congestion of the liver is an exceedingly common malady among our soldiers. European as well as native; and one cause of the great mortality of Remittent Fever, Cholera, and Dysentery among the East India troops is unquestionably the circumstance, that so many patients are affected with hepatic congestion at the very time when they are seized. At a subsequent part of his work, Dr. M. remarks that "seldom or ever do we meet with sporadic cases of these diseases, where a costive state of the bowels has not existed for some time."

In the *treatment* of Congestion of the Liver, our author gives a decided preference to Croton oil in powerful doses over Calomel or any other mercurial preparation. He is of opinion that much harm has been, and still is, done by the indiscriminate use of large doses of calomel in this and other diseases of the liver, which are not truly and distinctly of an inflammatory nature. The malady, for which it was given, may have indeed been cured; but the constitution in too many cases remains very seriously injured. There is no such objection to Croton oil, even when its effects are violent. The usual dose is five drops, combined either with extract of Henbane or with Opium. The dose requires to be repeated every alternate night, until the gall-bladder is thoroughly emptied, and the stools have lost that dark gelatinous appearance—which perhaps they have had for weeks or even months—and acquired the characters of healthy excretion. Another potent medicine, which Dr. Macgregor appreciates very highly, is tartrate of Antimony. His practice has at least the merit of boldness and decision; his prescriptions are certainly not mere *placebos*.

"The use of Tartar Emetic in congestion of the liver may be required, and if so, the following pills will be found powerful ones in producing a sedative, purgative, and diaphoretic effect:—

℞. Ol. Croton gtt. v.
Tart. Antim.
Opii, āā gr. iij. M.
Divide in pil. ij. h. s. s.

"When necessary, the quantities of opium and tartar emetic may be doubled, and pills of this strength are often retained when the former are rejected. Where these medicines are given in functional disorders of the liver, they often produce a sensation as if something were working its way from under the margins of the right false ribs, and both there, and in the left hypochondriac region, actual pain is sometimes induced followed by an alvine evacuation, the nature of which varies according to the stage of the disease. In old obstinate cases, the operation of these medicines produces nothing but light-coloured, or whitish dejections, and affords no relief to the weight in the sides indicative of congestion and distended gall-bladder: great irritation of the stomach, amounting often to rejection of its contents may, likewise, follow each exhibition of the medicine; nothing, therefore, but the most determined perseverance on the part of the patient and practitioner can remove the disorder; and until the bile appears in the stools, either in a diseased or healthy state, little or no progress is made in the cure of the complaint." P. 135.

The warm bath is always a useful adjuvant in the treatment of Congestion of the Liver. After recovery from a severe or protracted attack of this disease, the patient will generally require to have a change of climate. A sea-voyage is one of the best restoratives. Before quitting the subject of Hepatic Congestion, we are tempted to give the following extract, on the *state of the tongue* as affording valuable diagnostic signs in biliary complaints:—

"The state of the tongue is a most important subject in the treatment of biliary complaints. In congestion of the liver the tongue is generally whitish, and sometimes blanched, but not loaded; while, in inflammation of serous or mucous membranes, it is for the most part clean, red, and glistening; as congestion ceases, the tongue becomes loaded and moist; in forming a diagnosis, therefore, between congestion and hepatitis, the state of the tongue may, in some

measure, assist us: for a red, clean, glistening tongue indicates the want of secretion, if not the presence of inflammation; while the white blanched tongue attends the action of secretion of bile, though the latter may be absent from the bowels, and lodged, either in the gall-bladder or stomach; when the tongue is quite white it evinces great irritation of the mucous membrane of the intestines from want of the presence of bile, and this tongue is witnessed in the worst forms of Bilious Remittent Fever. In recovery from congestion, the tongue becomes loaded, and begins to assume a natural clean appearance when the bile has been fairly restored to the bowels, beginning first at the tip and edges; so long as the tongue remains loaded and moist, the use of purgatives is indicated; and the infusions of Senna and Chirayita may be administered in combination with saline medicines." P. 136.

In severe and obstinate *Jaundice*, Dr. Macgregor has recourse to his favourite chologogue pills, combined with an unusually large dose of the antimonial. The formula he gives is this:—

℞. Tart. Antimonii gr. vj.
Opii (pill) gr. iij.
Olei Crotonis ℥v.

to be made into two pills with crumbs of bread: "the tartar emetic acts here as a powerful sedative and anti-spasmodic, without necessarily producing in such a dose either nausea or vomiting."

Dr. M. thinks favourably of the Nitro-Muriatic Acid Solution, used either as a general bath, or applied as a wash to the surface. The internal use of the Nitric acid may also be often had recourse to with advantage.

Even for the relief of mere habitual *Constipation*, not to mention positive obstruction of the bowels, our author recommends his panacea of Croton oil, (five drops,) combined with Opium and Henbane; advancing the following very questionable reason for this preference:—"Instead of being obliged to repeat this medicine every other day, an interval of a week, or even a month, may elapse without any necessity for taking medicine; surely it is better thus to undergo the inconvenience of taking two small pills once a week, or once a month, than keep swallowing, or feeding on, pills daily."

We need scarcely caution our readers against such a line of practice. He goes on to say, that "no one need be alarmed at the apparently large dose of croton oil, a medicine supposed to act efficiently in a one-drop dose, or even half that quantity, for the same holds good of other powerful purgatives and sedatives. It is well known that a few grains of calomel act as a stimulant and purgative; while a scruple, or even half a drachm, has the opposite effect, or that of a sedative and astringent: in opium we find a medicine which, given in a grain dose or less, acts as a stimulant; while exhibited in doses of three or more grains it has a direct sedative effect." There is much fallacy, if not positive error, in this reasoning; the data, on which it is based, we are by no means inclined to admit.

The admirer of the Virginian weed may appeal to Dr. Macgregor as an authority in favour of its use:—

"As a means of relaxing the bowels, the use of tobacco may be mentioned; this article is extensively employed in the form of cheroots, the smoke of which inhaled into the mouth and palate appears to assist the action of the bowels, and

does not impair digestion, if the mouth be not deprived of saliva by the practice of spitting. The use of the hooka is now much less, at least in Upper India, than formerly; and it is an Oriental luxury which is fast disappearing among the European officers, who find the cheroot by far the most convenient mode of enjoying the smoke of tobacco." P. 153.

All that we have to say, on the much-vexed point of tobacco-smoking, is contained in two simple prohibitions: don't spit—don't drink.

Indication for the exhibition of Opium in Delirium Tremens, &c.—There is, it must be confessed, a certain amount of practical truth in the following remarks; but the practitioner must be on his guard not to attach undue importance to the presence of any one symptom; his conduct should always be regulated by the general symptoms, and more especially by the state of the circulation—as ascertained by examining the action of the heart, as well as the arterial pulse:*—

"It is difficult to say, what change takes place in the brain before sleep is induced, but a marked symptom of Delirium Tremens is a dilated state of the pupils; and according to Macnish the pupil during natural sleep is contracted. This dilatation of the pupils, though existing at the early period of Delirium Tremens, gradually diminishes under the use of laudanum, and other medicines, until it becomes unnaturally contracted as it often is in great excitement of the brain: in such instances, the contraction has evidently been brought about by the treatment, for if the disease runs its course to a fatal termination, the dilatation becomes more marked, until the pupil ceases to contract at all, even in the brightest light.

"The state of the pupil is a point of the utmost importance in the treatment of delirum, whether it be the effect of diminished or increased action in the brain; the dilated pupil being an index of the former state, and a contracted one of the latter: this has led to a successful practice by Doctor Graves of Dublin, who employs the combined effects of laudanum and tartar emetic, the former medicine being useful in delirium arising from a depressed state of the nervous system as in Horrors, and the latter from its sedative and relaxing effects, being equally efficacious in the delirium of excitement." P. 163.

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* The following passage from Dr. Holland's Essay upon the subject, may be introduced with advantage here:—

"The employment of opiates in cerebral affections is another question of much interest and various difficulty. It might be conjectured that there are some cases where the benefit is great; others, where inquiry alone can result; and experience fully confirms this presumption. Though it would be easy to detail particular cases in which one or other of these results is likely to ensue, I know no single principle, yet ascertained, by which they may be classed and distinguished. Perhaps one of the best practical tests might be found in the state of the pupil; known to be differently affected by opium, by belladonna, and certain other narcotics. Where contraction of the pupil is one of the symptoms of the disease, it may with some reason be supposed that opium is contra-indicated as a remedy; and a like inference might lead to the use of the opposite class of narcotics in its stead, transposing these methods, where the disease habitually produces a dilated state of the pupil. As far as my experience goes, it partially confirms the accuracy of the test, but is by no means sufficient to allow one to speak of it with certainty. We are still obliged to act here upon the suggestions of the time and symptoms present, or upon the experience which partial trials may afford."

In treating a case of decided *Delirium Tremens*, Dr. M. usually orders a drachm of Laudanum and one grain of emetic Tartar to be given every hour, until sleep is obtained; premising, in most cases, a turpentine enema. He advises also that the head be shaved, a blister applied on the crown, and the raw surface then dressed with a stimulating ointment. He does not approve of wine or any ardent spirits being allowed. When there is very great irritability of stomach, he has often found, he says, "the exhibition of five drops of Croton oil, either alone or combined with Opium, useful in restraining the nausea; if the stomach be loaded with bile (which it often is in such cases,) free vomiting follows the use of the medicine, after which relief is experienced. After the delirious symptoms have entirely subsided, purgatives and tonics—such as the infusion of Chirayita, with diluted sulphuric acid—will be necessary."

Piles.—This is a very common disease among soldiers, native as well as European, in the East Indies. Many cavalry and horse-artillery men are obliged to be transferred to the foot-service, in consequence of it; and not a few are disabled altogether by the supervention of Prolapsus of the rectum.

"Hemorrhoids and strictures of the urethra being common disorders are the means of removing many men from the mounted branch, though the latter affection is not so common a disease now as when injections were employed in the cure of Gonorrhœa." P. 172.

He points out the frequent connection of Piles, and also of hæmorrhage from the bowels higher up—this latter complaint is not unfrequent in India—with congestion of the Liver.

"In Hemorrhoids, as in many other diseases common to both temperate and tropical climates, the functions of the liver are often disordered, and this fact must be borne in mind in their treatment, whether they present themselves in the form of diarrhœa, dysentery, costiveness, obstruction or hemorrhoids; also, in a complaint which is sometimes met with in officers of long standing, I mean a flow of blood from the bowels; in the latter, the functions of the liver, and even the viscus itself may be disordered.

"Such a discharge is critical, and no doubt prevents a more serious illness; it must therefore be checked with caution." P. 173.

Scurvy is a disease of not unfrequent occurrence among the natives of India. It cannot, among them, be attributed to the use of salt meats or to a deficiency of vegetable food; neither can a cold damp climate be the producing cause, in their case. But the truth is that, whatever tends to enfeeble and deteriorate the general health, is apt, at certain times, to occasion symptoms of scorbutic cachexy. Hence—not to mention the influences of impure and vitiated air, in consequence of neglected ventilation in hospitals and prisons for example, and of an insufficiently nutritious diet, like that which the Hindoos live upon—these symptoms not unfrequently make their appearance after long-continued and repeated attacks of Fever and Rheumatism, after the injudicious use of mercury, and so forth. Upon this latter point, Dr. M. remarks that, "when calomel is accumulated in the system without producing salivation, and this at an unhealthy period of the year, it may undoubtedly give a tendency to the

scorbutic disorder, and even produce some of its symptoms, such as pain in the shin-bones and disease of the gums." The following is the description of the disease, as it presents itself to the Indian practitioner :—

"Land Scurvy, as affecting the native of India, is marked by a sponginess and purple appearance of the gums, and a leuco-phlegmatic or blanched countenance; pains in the shin bones which are often mistaken for Rheumatism, the integuments over these bones are puffy, and discoloured with livid spots resembling Echymoses: there is considerable debility which increases daily, and the digestion is greatly impaired. It is seldom, however, that all these symptoms are present at the same time, and hence the diagnosis is a matter of some difficulty when the rheumatic pains are merely present; when the gums become affected, the existence of the disease is easily recognised."* P. 177.

The only certain means of cure is change of air; the patient must be sent off to the hills without delay.

As in some degree allied to Scurvy, we may here introduce a few remarks on

Dry Gangrene.—This formidable affection is apt, as we have already stated, to be induced by the immoderate use of Calomel, especially when the drug does not produce its usual constitutional effects, nor excite ptyalism. The parts generally affected, under such circumstances, are the lips and cheeks. "There is a livid appearance around the mouth, or a circular patch of the same colour on the cheek. In severe Fevers which run their course in spite of every mode of treatment, and in which calomel has been exhibited to the utmost extent, this livid appearance continues until death, marking the existence of Gangrene which, no doubt, hastens the fatal termination."

The affected part of the face often becomes as black as charcoal. In many cases—more especially where symptoms of Dysentery had been present during life—there is ulceration and mortification of the intestines, at the same time. On the subject of treatment, the following practical remarks deserve the notice of the reader :—

"As remedial means for Dry Gangrene when produced by calomel, those medicines used for the cure of mercurialization should be employed, such as the saline purgatives, nitric acid, sarsaparilla, and the frequent use of the warm-bath: the decoction of guaiacum, sassafras and the anuntamool or hemidesmus indicus are useful: the hydriodate of potass appears equally useful in removing the effects of mercury as in syphilitic cachexia, and may be used with advantage in Dry Gangrene when the effect of calomel.

"The free use of the warm-bath is perhaps, of all other remedial means, the most efficacious in removing the bad effects of mercury from the system; but in cases of Dry Gangrene, it can scarcely be employed to the requisite extent, as the patient is, for the most part, weak and debilitated. The nitro-muriatic

* The allusion in this passage to the rheumatic-like character of the pains in Scurvy suggests to our recollection that Sydenham has described a scorbutic species of Rheumatism. *Jam vero quantumcunque discriminis inter verum Rheumatismum et Scorbutum intercedat, aliam tamen speciem esse rheumatismi, quæ ad scorbutum quam proxime accedit, omnino confitendum est, utpote quæ insigniora hujus morbi symptomata æmulatur et pariter eadem ferme remedia sibi vendicat.*—Observ. Med. vi. 5.

bath may likewise be used, or rather the sponging, as a means of improving the general health, and the sulphate of quinine is to be administered, or the decoction of bark with diluted sulphuric acid.

"As local applications, the powder of bark is useful, so is the carrot poultice covered with camphor. In all gangrenous and sloughing sores, the carrot poultice is of the utmost importance.

"During the sickly season in the North-western Provinces, the application of blisters to native soldiers is often followed by sloughing sores, and the integuments, cellular and adipose substance are destroyed, laying bare the muscles which stand forth in bold relief; in such cases, the carrot poultice is the most efficacious in producing healthy granulations. In some of the worst cases of sloughing, the use of this vegetable as a poultice is almost miraculous." P. 187.

The chapter on *Rheumatism* is one of the least satisfactory of any in the book. The disease is common, both in its acute and in its chronic form, in India; and we are told that it is a frequent cause of disablement among the troops. It would seem, from what our author says, that it often prevails as an Epizootic, more especially among poultry; but what he means by saying that "it is not an uncommon occurrence to lose numbers of geese and turkeys from this disease, in the course of a single night," we cannot understand: rheumatism does not usually prove fatal so very rapidly, at least in the case of human beings. He seems to have very inaccurate notions respecting the connexion between acute Rheumatism and Cardial inflammation, nor does he even so much as allude to any of the auscultatory signs among the phenomena of the disease. His remarks, too, upon the treatment of it are exceedingly unsatisfactory. All that is said on the subject of acute Rheumatism is, that "the lancet is universally employed, and often with great success;" and, with respect to the chronic form, the information is most meagre and uninstructive. On the one hand, we read that the disease will sometimes yield to Peruvian bark, (℥j. ter die;) and, on the other, that "the use of calomel, so as to produce salivation, has often been found a cure for obstinate Rheumatism; and many medical officers employ this treatment exclusively; though effectual in curing the disease, it is doubtful whether a relapse in a worse form be not a common occurrence after the use of that drug."

Unless we have some therapeutic principle to guide us in the treatment of so diversified a malady as that which passes under the name of Chronic Rheumatism, our practice must always be empirical and wavering; there is, in truth, very nearly as much chance that we hit the wrong, as the right nail upon the head. That many of the cases of the disease in the East Indies are attributable to the operation of a malarious agency, and partake largely of a *neuralgic* character, we have no doubt. It is in such cases that bark, quinine, and arsenic will prove most serviceable; but we cannot reasonably anticipate benefit from such medicines, as long as there is any febrile or inflammatory action in the system. One of the most important guides in our diagnosis of the true nature of each case, and consequently in its treatment, will be found to be the condition of the urinary secretion. But it is unnecessary to dwell upon this point here, as we expressed our views upon it, at some length, in the last number of this Journal, in the review of Dr. Robertson's work on Gout.

There are two or three other points in Dr. Macgregor's work which

we had intended to notice, had our space permitted. What, however, has been said, and the extracts which have been given, will quite enable the reader to judge for himself of its merits and demerits. In spite of several obvious blemishes, it contains not a little of truly valuable information, and of very useful instruction. That subsequent experience has led the author to modify somewhat his over-exclusive views alike in theory and in practice, we have little doubt. A golden rule in the treatment of all diseases, mild or malignant, is—avoid extremes in the employment of any one remedy. Infinite mischief has been done by the neglect of this simple precept.

FRUITS AND FARINACEA, THE PROPER FOOD OF MAN. By *John Smith*. Octavo, pp. 422. London, 1845.

IT is quite refreshing, amid our ordinary critical labours, to meet with the work of a honest enthusiast. Such is Mr. Smith, of Malton; and although we cannot agree with the conclusions he arrives at, and should feel very averse to following the practice he inculcates, we must admit he has argued his case well and ably, and has produced by far the best work upon an interesting subject. His object is to recommend an exclusively vegetable diet as the original, natural, and best diet of man, and he ransacks the fields of comparative anatomy, chemistry, personal testimony, and national peculiarities, to furnish due and fitting arguments and evidence. He is moreover no mere theorist, but practises what he preaches, and we cannot do better than commence this notice with a brief account of his experience. Having been engaged in the preparation of an Essay which brought prominently before his notice the similarity in the development of the nervous system in man and the higher classes of animals, he was induced to ask himself the following question:—

"Is man justified in slaughtering animals for his food; seeing that, by means of a beautifully organized structure, they are rendered exquisitely sensible both of pleasure and pain? The answer I mentally returned to the inquiry was—If the flesh of animals be necessary to the health, happiness, and longevity of man, then the law of self-preservation will warrant his taking the life of animals; provided he be guilty of no cruelty, nor cause unnecessary pain to the animal that he sacrifices to supply his wants; but if, upon further inquiry, it should appear, that the life of man can be preserved, his happiness or pleasure continued or rendered more pure and satisfactory, and the period of his mortal existence unabbreviated or prolonged, by a diet of which the flesh of animals forms no part—then would neither wisdom nor benevolence sanction the horrid cruelties that are daily perpetrated, in order to pamper the perverted appetites of man."

To determine this question he entered upon an elaborate train of investigation—the steps and results of which are detailed in the present work.

"I arrived at the firm conviction, that the flesh of animals is not only wholly unnecessary, but decidedly prejudicial to man's health and well-being. I therefore at once discontinued it, as an article of diet; and, notwithstanding the

expressed fears and remonstrances of my friends, I persevered; and was soon rewarded with better health and more real enjoyment, than I had experienced during many previous years. Having derived incalculable advantages from a strict adherence to a fruit and farinaceous diet, and being fully satisfied (after a long and patient investigation of evidence) that it is a food adapted to *all* constitutions, in *all* climates fit for the residence of man, I can no longer resist the importunity of my friends to make known to the public the result of my inquiries. * * * * * * About nine years ago I suffered very much from dyspepsia; and was treated *secundem artem*, by my medical adviser, who was eminent in his profession; but I derived little benefit from either the diet or medicine prescribed for me. I adopted a vegetable diet, not as a remedy for my complaint, but for the reasons already mentioned; and after using this regimen for a very short period, I no longer suffered from a disease that had formerly been a daily and severe drawback upon the pleasures of existence. Like the patients mentioned by Mr. Thackrah, I have often resumed my flesh-eating habits; partly for the sake of experiment, and partly with a view of complying with the general usages of society, and to avoid singularity; but, after a short time, I have always had cause to repent the change, from the inconvenience and pain that were the consequence. I have now sufficiently tested the diet practically; and hesitate not to say, that since I have totally abstained from animal food, I have possessed more health and strength of body, more peace and serenity of mind, as well as more intellectual enjoyment, than at any former period of life: and I trust that I shall never once be induced to depart from that simple mode of living, which, while it has conferred on me the inappreciable advantages just mentioned, also yields more exquisite sensual gratification than I ever experienced on the most richly-flavoured dishes of a former period."

When we say the author manages his question ably, we would be understood that he does so in the sense rather of an acute advocate than an impartial judge; for, while he submits all evidence on the other side to rigid scrutiny, he receives any testimony in favour of his own view from any quarter, trustworthy or not, (and such as sometimes amounts to mere coincidence,) as a matter of course. He divides his work into three parts, each leading naturally to the other; namely, into an inquiry as to what constituted the *original* food of man; what is his *natural* food; and what is his *best* food: winding up with a few reasons for believing that a vegetable millenium is not to be despaired of, although not immediately to be anticipated.

1. The section upon the *original food* we may at once dismiss as of no more consequence to us at the present day than the original clothing or original language of man. Moses and the classic poets, according to Mr. Smith, show plainly enough that man was originally a vegetable feeder; and if they had not done so, he says we might have inferred as much from a contemplation of his innocent condition and the original purity of his sensual perceptions. Had not the book contained better matter than such stuff as this, we should not have troubled our readers with a notice of it.

2. What is the *natural food* of man? To answer this, Mr. Smith glances hastily at the structure of the alimentary organs of the carnivora and herbivora as compared with those of man, and arrives at the conclusion that man, in this respect, most closely resembles his brother the ape, and as this is for the most part a frugivorous animal, so naturally is he. Were man destined to live in the wild state like other animals, food of some such

description is that which he would most readily obtain in consequence of the feebleness of his jaws, the absence of powerful tearing or grinding teeth, and his destitution of natural weapons of offence and defence, and such food would comport well enough with the structure of his alimentary canal. But the possession of reason has enabled him to conquer articles of diet from every domain, and the art of cookery, also peculiar to him, renders those of them which in their crude state would be ill adapted to nourish him competent to effect this object. But Mr. Smith observes the fact, of so large a variety of substances agreeing thus with man, and his being able to thrive well upon all or any of them under different circumstances, prove not his *omniverous* nature, or that they are naturally adapted to his sustenance. What do they prove then? only his great *adaptability*. Be it so; and surely an acknowledged adaptability to his ever-changing circumstances, so important a feature in the natural history of man, is a sufficient admission, which renders idle any discussion as to what might have been his especial adaptation under circumstances in which he has never been placed. The statement that his digestive organs are essentially adapted for vegetable diet is a mere assumption.

After maintaining that animal food must *naturally* be very repugnant to the senses of sight, smell, and taste, and explaining the fact of its being *actually* the very contrary of this by the force of habit which has blunted natural sensibilities, and engendered most artificial ones—the author takes leave of this part of his subject by a disquisition upon its moral aspect, endeavoring to prove that the slaughtering animals for the purposes of food must do violence to the sensitive and moral feelings of man. This argument against the use of animal food on account of the cruelty of the practice is evidently a weak one, and one we never expected to have seen revived after the slaughter of Ritson's work upon the subject by the Edinburgh Reviewers. It may perhaps with some persons answer the author's purpose, to parade tales of the tormenting animals prior to butchering them, cutting slices out of the buttocks of the live Abyssinian oxen, or the slow roasting of the Strasbourg geese; but while every one will join him in deprecating the cruelties here stigmatized, or any others engendered by epicurism, all reasonable people are aware that, as a general rule, animals are killed for food with the infliction of as little suffering as possible; while the statement of the fact that, numberless creatures are reared solely for the purpose of supplying man with food, and pass their lives in well-cared-for ease and comfort, is but the expression of the existence of a vast amount of animal happiness, which but for this circumstance would never have been created, and which is chequered and even terminated with less physical suffering than man himself has to endure.

3. The former portions of the subject are but preparatory and subordinate to the question, *Which is the best food of man?* the only one indeed of any practical interest whatever. Mr. Smith distributes his proofs, that a vegetable diet is the most appropriate one, over several chapters, some of which we may notice.

Vegetables contain all the elements and qualities necessary for the complete nutrition of man.—This requires no elaborate proof, seeing that whole nations subsist upon vegetable matters alone. Nevertheless, the researches of modern chemists have proved the complete identity of the protein de-

rived from animal and vegetable sources. Mr. Smith, while admitting in general the correctness of Liebig's views on the nature of food and the nutrition of animals, demurs to that portion of them which denies to the non-azotized principles the power of supporting life by nourishing the tissues, and assigns to them only the province of maintaining the animal heat. If this were the case, the diet of the inhabitants of tropical regions, abounding as it does in carbon and hydrogen, would generate a quantity of caloric far beyond their means of dissipation. He maintains that nitrogen is introduced into the system by other means than as a component of articles of food, and especially during insalivation and deglutition. This, in the stomach and duodenum, plays an important part in the combinations it forms, according to the exigencies of the system, with the otherwise superabundant proportions of carbon and hydrogen. As the author makes great use of these very questionable views in various parts of his work, we will extract some of his observations upon them :—

"Neither men nor the lower animals are at all times so situated as to be able to procure, in sufficient abundance, that food which contains all the elements in the precise proportion and mode of combination best suited to their organization; the atmosphere, therefore, presents an immense reservoir, always at hand to make up deficiencies by means of mastication or respiration; and the digestive, chylopoietic, and secerning organs are endowed with such capabilities as to vary, within certain bounds, their proper functions; and to seize with unerring precision, those elements of the atmospheric air of which the ingesta and circulating fluids are deficient.

"In applying these views to man, on a natural or vegetable diet, the following suggestions are offered. In warm climates, where an elevated temperature is incompatible with great muscular exertion, nature has provided a bountiful and pleasant repast of fruit, rice, and other vegetables possessing a considerable proportion of carbon and hydrogen, but little nitrogen. By virtue of affinities modified by vital agency, these nutritive substances are formed (in the stomach, duodenum, &c.) into new compounds, by a re-arrangement of their elements, and by a combination with those of the atmosphere; thus producing either proteine or fat, as the wants of the system may determine. If the tissues are wasted by exercise, more oxygen and nitrogen are supplied by the atmosphere, so as to prevent the formation of oleaginous compounds; and the albuminous principles that result, are converted into fibrin to renovate the system; but, if sedentary occupations preponderate, less fibrin becomes necessary; the deficient supply of air causes more oxygen to be separated from the food; and an increase of fat is the consequence, especially if the food be in excess. If a more azotized diet be indulged in, then—as there is less occasion for the formation of the protein from the starch—the carbonaceous compounds must be eliminated by the skin, liver, and lungs; but, as the cutaneous surface, especially of the white variety of mankind, is not constituted for performing the additional duty now demanded of it, and as in these circumstances there is a deficient supply of oxygen to the lungs, carbon accumulates in the blood; and the liver is called into an excessive exercise of its function, in consequence of the inactivity of the skin and lungs. Hence the prevalence of hepatic disease in hot climates.

"In cold and temperate regions, wheat and other azotized products may be more freely indulged in; and the carbonaceous principles of food are then left at liberty for the respiratory function; muscular exercise becomes more easy and pleasant, and caloric is more abundantly formed. The inhabitants of these countries are more exposed to diseases of the chest, and their numerous train of distressing complaints arising from the presence of an abnormal proportion of lithic acid in the system, such as gout, rheumatism, gravel, &c. The extreme

indulgence in animal food in these countries becomes the predisposing cause of all these diseases, as well as of dyspepsia and liver-complaints. If flesh, or other highly azotized food, be taken with a very small proportion of starchy matter, the sufferings of the dyspeptic are alleviated, because there is then less carbon for the liver to separate; but this diet demands more exercise from the lungs, in consequence of the diminished supply of oxygen from the food, and hence its danger to persons threatened with phthisis, as well as to gouty individuals, from its favouring the production of lithic acid. If the dyspeptic were to entirely abandon the use of animal food, and adopt a diet of fruit and farinacea, not only would the disease be palliated (as in the above treatment,) but in the generality of cases entirely cured, without throwing an additional burden upon the lungs or kidneys; the former having their labour remitted by the disengagement of oxygen from the food, during the conversion of starch into protein; and the latter having less duty to perform, in consequence of the diminished supply of substances containing protein ready formed." 160.

Mr. Smith endeavours to meet the prevalent opinion of the indigestibility of *fruit*, by the considerations—1, that it is so opposite a diet to that which most persons have accustomed themselves, and hence, at first, disorders; 2, it is only eaten at desert, when the stomach is already filled with various incongruous aliments; 3, it is eaten with imperfect mastication and insalivation.

There are very many excellent observations deprecatory of taking food, in too concentrated a state, thus overlooking the important combinations of innutritious and nutritious matter with which Nature furnishes us. The ill effects of this are undesignedly shewn in Stark and Majendie's experiments. We have only space for a few observations relating to *bread*:—

"Knight in his Physiological and Horticultural Papers, says, 'Bread made of wheat, when taken in large quantities, has probably, more than any other article of food in use in this country, the effect of overloading the alimentary canal; and the general practice of French physicians points out the prevalence of diseases thence arising among their patients.' All the evils said to be produced by living on bread, are due to our modes of refining upon nature; and though it must be admitted, that bread made from the finest wheaten flour, if eaten in great abundance, and without a due admixture with innutritious matter, will be productive of serious consequences to health, yet it can be shown upon good authority, that many individuals have subsisted for years on coarse, undressed, wheat-meal bread and water alone; and have not only improved in health, but become remarkably robust and vigorous. Children whose food, for a considerable time, consists of superfine flour-bread, arrowroot, and other concentrated substances (such as sugar, butter, &c.,) may appear fat and well; but do not acquire strength; they generally become weak and sickly, and are often covered with sores. Hence, some physicians, who have written on the diet of children, have spoken in severe terms against confining children to an exclusively vegetable diet. But if a child be put upon a diet of good bread, made of undressed wheat-meal, with milk-and-water, or pure soft-water for drink, and be allowed to indulge pretty freely in the use of good fruits in their seasons, none of the evils which result from concentrated forms of aliment, or which are attributed to vegetable diet, will be experienced; but the child, if in other respects properly treated, will be healthy, robust, and sprightly." P. 176.

Passing over the next two chapters which are occupied in exhibiting the excellent effects a vegetable diet has exerted upon not only individuals but whole nations, we come to that which maintains that such a diet is

consistent with physical strength and activity. Mr. Smith seems to view the animal frame as the depositary of a certain amount of vital power, which will either be exhausted soon or late, according to the extravagance or care with which it is expended. Thus, under the use of animal food, the processes of assimilation and nutrition are more rapidly performed, and the waste of organised matters proportionally great, as is seen in the more speedy recurrence of the sensation of hunger, and the necessity of renewed supplies of food. By its stimulating effects it may enable great efforts to be made through a brief period; but these are followed by proportionate exhaustion; and if prolonged, sustained, truly effectual, exertion is required, then does vegetable food best enable it to be made; while, if we seek for a consentaneous development of the physical, mental, and moral powers, then is it essential. Numerous instances of great power of endurance, occurring among nations who are vegetable feeders, are adduced; it not being Mr. Smith's object, however, to deny that great bodily vigour and strength may be produced by a mixed diet, but to show that the possession of these is not inconsistent with subsistence upon a vegetable one. The case of the English labourer or navigator, whose superior physical powers is so well appreciated by the contractor of foreign railways and canals, and which, (as also the energy and power of the English operative classes in general, whose like exists nowhere,) has been usually, and we believe correctly, attributed in great part to his better and more animalized diet, is endeavoured to be gotten over by the author by the declaration, that however unable the liver upon grain, fruit, and roots is to cope with his carnivorous rival during the brief periods of great toil, yet that, owing to greater continuity of his lesser modicum of exertion, he is in the end able to accomplish more—a most gratuitous and unfounded assertion. Indeed, we are persuaded that just the contrary is the fact, and that a man laboriously employed and living upon a mixed diet, and avoiding excess of every kind, will be enabled to continue his exertions over a much longer period than one unprovided with such food. Of course we are here speaking of the inhabitants of temperate climes. It is true that the British and Irish peasantry are hard-working, laborious, races, and their food only vegetable; but who does not believe that their present great liability to disease and premature mortality would be much diminished could a better diet be provided for them?

Animal Food a Cause of Disease.—Mr. Smith makes a round assertion that animal food is a leading cause of our diseases, just as a vegetable regimen is one of the approved means of their removal. His remarks are only just when applied to some of the easier and indolent classes of society, who doubtless consume more animal food than their habits of exercise, &c., justify; but which of the diseases of the hard-working classes of the community can we justly refer to such a source? and what medical practitioner is unable to point out numerous cases evidently due to a privation of this, or at all events relieved by having recourse to it? But looking at the matter in a general point of view, we may ask Mr. Smith how comes it, if animal food is so detrimental to health, that our amount of mortality is continually on the decline, notwithstanding that the con-

sumption of butcher's meat is, as regards the mass of the people, infinitely greater than when this was higher?

Gout, of course, is a strong card in our author's hand, when detailing the diseases arising from the use of animal food, but he makes no allusion to another frequent element in its production—the too free indulgence in vinous compotations. We entirely demur to his statement, that animal food is a common cause of scrofula and consumption. If this were the case, surely these diseases should not commit such cruel devastations among the vegetable-consuming portions of the Irish, Scotch, and French.

Beneficial Effects of Vegetable Food on Invalids.—The experiment of treating *Dyspepsia* by an exclusively vegetable diet seems to have been rather extensively undertaken in America: and, according to the report of Dr. North of Hertford, with great success, although he does not specify the class of cases benefited. The profession in this country usually condemning such regimen, few cases of its adoption are recorded. The author, however, quotes two or three from Dr. Abercrombie and Mr. Thackrah. His own case we have already adverted to: and the following is an abstract furnished by that veteran vegetable feeder, Dr. Lambe:—

"From the age of 19 to 35, I was constantly suffering from the usual symptoms of dyspepsia; which, towards the latter period, were accompanied by a constant and oppressive pain about the stomach. At the age of 35 I had an attack of enteritis, which was severe enough to require two venesections; after this I never went out in the damp of the evening, without feeling some tenderness of the abdomen. Under these circumstances, together with a general feebleness of health, I determined to try the effect of substituting distilled water for common water as my drink. The effect of the change was a thorough relief of the dyspeptic pains and abdominal tenderness. In the ensuing three years, a headache, from which I suffered occasionally earlier in life, returned so frequently and so severely, as to induce me to take active measures for its relief. I then determined to abstain from animal food, as well as from common water. The intensity of the paroxysms was instantly relieved; yet they recurred, in a mitigated form, for at least 30 years. I have been engaged in the active duties of my profession until the middle of last year, which was the 80th of my life. Since then, from a partial failure of my sight, I have retired into the country; where, making allowance for my time of life, I enjoy a good share of health." P. 281.

Mr. Smith enumerates the diseases (scrofula, scurvy, epilepsy, dysentery, inflammation, ulcers, &c.,) relievable by vegetable diet in rather too indefinite and quack-doctor a style for our taste. An isolated case or two of this or that disease, successfully treated by this or any other means, to the medical observer says nothing whatever. That vegetable diet is a valuable adjunct in the treatment of many or most diseases, none will deny: but to rely upon it exclusively, or to adopt it in all cases, would augur but little wisdom on the part of the practitioner.

Mr. Smith maintains that a vegetable regimen exerts an especial protective power against *epidemic and contagious* disease. Among other examples in proof of this he cites the case of Howard the philanthropist, who passed unscathed through so many pestilential dangers. Doubtless Howard's temperance and moral courage greatly conduced to his long immunity, but we must not forget he at last fell a victim to his devotion to the cause of humanity. Then, again, the progress of the cholera in New

York is brought in evidence; because à Mr. Graham induced several persons there to adopt a vegetable diet, none of whom fell victims to the disease. Loose evidence of this kind is of no avail in these days of statistics and particulars; and we wish to know how the author explains, upon his vegetable feeding hypothesis, the fact that London, the most flesh-consuming of all the capitals attacked, suffered the least; and that that portion of its community which is most addicted to anti-Pythagorean practices was precisely the portion that escaped nearly scot-free. The low ill-fed population of Dublin perished in vast numbers, as have repeatedly done the vegetable-feeders of India.

Two chapters are devoted to proving that the employment of vegetable food is conducive to the symmetry and development of the body, and to the acuteness and perfection of the special senses; while for those who may believe that, however useful, it cannot be the most pleasant of food, Mr. Smith has also words of consolation:—

"The prevalent notion that vegetable diet requires the continual exercise of self-denial, and considerably diminishes the pleasures arising from the gratification of the palate, is with many persons the most weighty objection to any change. This notion is however decidedly erroneous; and not one fact can be brought forward in support of it. Under a fruit and farinaceous diet, the organs of smell and taste become much more sensitive; and the sensations resulting from the gratification of a natural appetite upon this food, are much more exquisite and refined, and much more constant, than can possibly be experienced on an animal or mixed diet; which requires great variety, continual changes, and many additions from the vegetable world, to prevent disgust. I do not assert that the vegetable-eater looks forward with such anxious cravings to an expected meal, as the bon-vivant; who has, perhaps, been under the necessity of rousing the appetite of an already surfeited system, by bitters and stimulants; this would be to withdraw his attention from higher and more worthy pursuits; and to convert the supreme enjoyments of a moral and intellectual being, into the inferior pleasures of the sensualist. * * * * * * * * *
It is true that some who have but lately adopted a vegetable diet, meet with many tempting dishes of animal food, which they find it difficult to deny themselves; and to persevere requires a firm resolution, and a mind well convinced of the advantages to be derived from the change: but when time has familiarized the organs to more simple preparations, and the mind has been fully satisfied as to the propriety of the change, and the benefits resulting from it, the former dishes will become more offensive than pleasing, and the perfumes arising from them will only increase the disrelish for them. Since my commencement of vegetable regimen, I have several times partaken of animal food again, for the purpose of making observations on the change effected by diet in the secretions, &c.; and always had considerable difficulty in overcoming the disgust which the taste of flesh at first excited. The pulse was accelerated, the breathing became more rapid, the temper more irritable, the mind less collected, and the feelings generally less comfortable. In the course of two or three days the antipathy was overcome, and the other effects gradually subsided, but not entirely; and I always returned to a more simple and a more natural diet, with great pleasure, as upon it my enjoyment was much more complete." P. 327—9.

Numerous authorities are quoted to prove that vegetable diet is *favourable to mental exertion and intellectual culture;* while the effects of animal food in implanting bad passions and propensities the author holds as quite proven. Did not Fuseli and Mrs. Ratcliffe devour raw meat when they

wished to engender an extra supply of the horrible in their imaginations? And few parents are aware of the mischief they are inflicting on the moral constitution of their children by allowing them, or rather forcing them, to partake of animal food in any shape.

Vegetable Diet favourable to Longevity.—Mr. Smith maintains that, with a vegetable regimen, not only is the enjoyment of life much increased, but its duration is also much more prolonged; for not only have most of the celebrated very long livers been entirely or chiefly vegetable feeders; but the fact of the more rapid renewal of tissue, which takes place when employing an animal diet, is significative of a more speedy wearing-out of the bodily machine. Temperance and exercise have always been the two great means for attaining longevity; and in what manner a moderate share of animal food could prove an impediment to this it would be difficult to imagine.

So much as regards the individual; but Mr. Smith's vegetable regimen has rendered him too much of a philanthropist and philosopher to allow his ruminations to stop at this point, and accordingly he carries his onslaught upon beef and mutton into the realms of political economy. From evidence derivable from this quarter he does not hesitate to predict that, at some future time, *nolens volens*, vegetable food *must* become the universal food of man—albeit, that such day may be hundreds or thousands of years distant. When population has so increased, that space will have to be economized in order to produce the means of feeding it, then the author flatters himself men will be at last driven to feed on that which is after all best fitted for them. Liebig has calculated that if a man accustomed to subsist upon animal food and starch were to discontinue the latter, he would have to consume five times the quantity of the former—so that one pound of starch seems to supply the place of four pounds of flesh.

"If it be admitted, that an average of six pounds of animal food a day would be necessary for each individual, on an *exclusively flesh diet*, then, since an acre of land employed in feeding cattle only produces 10 ounces of flesh per day, it would require nearly 10 acres to support each person for a year; whereas one acre of wheat would supply three persons, and (according to Curwen) one acre of potatoes would serve at least 10 persons with sufficient food for the same space of time:—so that a diet of potatoes and fruit would support 100 times the number of inhabitants that could be maintained on an *exclusively flesh diet*.

* * * * * *

"In the United Kingdom of Great Britain and Ireland there are at present about 28 million inhabitants, and about double the number of acres of land in cultivation; consequently two acres for each individual. Were all living on a full animal diet, the land could only supply food for five million six hundred thousand inhabitants; on the greatest delicacies of fruit, grain, and roots, 11½ millions; on grain and other vegetables (when according to Lauderdale one acre will support four persons) 224 million; on potatoes and common fruits, 560 million:—without including the extra produce from improved culture. Or, let us suppose that, in Great Britain and Ireland, there are (in round numbers) 80 million acres; of which 60 million are arable, or capable of being cultivated. Let half of these be appropriated to the production of the finest fruits, flours, and timber, and to the support of cattle, sheep, and other animals for the pro-

duction of milk, wool, &c; we shall then have 30 million acres for potatoes, wheat and other grain. Let one-half of this remnant be sown with wheat, and the remaining fifteen millions planted with potatoes: then—

15,000,000 of acres of wheat, at 3 qrs. per acre, will feed	45,000,000
15,000,000 of acres of potatoes, at 10 persons per acre .	150,000,000
	195,000,000

which is equal to seven times the present population, and more than thirty times the number that the land would support upon flesh alone." P. 391-2.

As our population doubles itself every 50 years, lest any of our carniverous readers may feel startled at the author's figures and predictions, and have fears for the good dieting of their descendants; let us hasten to express our conviction that so determined is the predilection of John Bull for beef and mutton, that have it he will; and if he cannot grow it upon his present large surplus of millions of unemployed acres, he will employ those facilities which a long purse, freedom of commerce, and improved means of transport, will furnish him with, for inducing other nations to devote some of their boundless territories to the satisfying his carnal cravings. Mr. Smith believes that our country has now reached or thereabouts its zenith, and if we are to prevent that period of decay which has hitherto crumbled down the proudest empires, this will be accomplished by the universal adoption of a natural diet—when the richer classes will consent to forego their present privileged condition—not as regards political or social rights, but in respect to dietetic rights, which at present allow "the rich man to consume the produce of an acre at a meal, while his unfortunate brother is left to starve."

The work is terminated by a few rules for those who are about to commence an exclusively vegetable diet. In the first place they must be determined and persevering, and should conduct the change gradually, allowing a few weeks to elapse in the process of accustoming themselves. Due mastication and insalivation are more important here than when feeding on a mixed diet. Each meal must be completely digested before another is taken. If a desire for food recurs sooner than six hours, it is an indication of imperfect chylification. The author enumerates the various articles whence the diet may be selected; but these we need not particularize, as all the grains, roots, and fruits are among them. He seems to attach more importance to the last as articles of diet, than any other writer we have met with. He repeatedly, in the course of his work, refers to the error of those who consider herbs and greens, and such like aliments, as forming important articles of the vegetable-eater's diet. Nevertheless we should much like to have seen Mr. Smith's own daily bill of fare; for in spite of all his encomia, we cannot but think the farinaceous and fructaceous classes of aliments form but a monotonous diet after all.

In conclusion, we may express the opinion that Mr. Smith has stated his case ably but not successfully; he has said enough in favour of an exclusively vegetable diet to show that it offers all the requisites for human sustenance, when fancy, ill-health, or any particular circumstance, may induce its adoption; but no sufficient arguments or experience have been advanced to lead us to believe that any advantage would arise from its substitution in place of the ordinary mixed regimen. His statements

rather apply to an exclusively flesh diet, which no one supports, and than which the vegetable diet would be infinitely preferable; and if any of them are of at all an extensive applicability, they are so only to those classes who habitually indulge in too large a proportion of animal food, which is certainly the case with many of the wealthy and inactive inhabitants of cities. Mr. Smith, as we have seen, believes animal food is even a great provoker of disease, and cites with pleasure the fact of so large a portion of the human race being able to dispense with it. So far from agreeing with him in this view, we confess to the opinion that much of the Englishman's comparative good health and robust constitution, much of his laborious application, indomitable courage, and unwearied perseverance, arise from the superior *stamen* his more substantial diet confers upon him. He is the greatest meat-eater among the livers upon a mixed diet, and yet who will venture to assign him an inferior position in the scale of nations. We believe his retention of his present rank in that will be much dependent upon his continuing to obtain a sufficient, but not an excessive, supply of the "Roast Beef of Old England."

We do not think Mr. Smith will make many proselytes, but to all those whose condition of health, temperament, or stings of conscience, may render the resorting to a vegetable diet desirable, we can recommend his book as saying all that can be said in its favour.

LECTURES ON THE NATURE AND TREATMENT OF DEFORMITIES. By *R. W. Tamplin*, F.R.C.S.E., Surgeon to the Royal Orthopædic Hospital. Small 8vo. pp. 267. London, 1846. Longman & Co.

IT is now nearly 30 years ago since Delpech introduced the present mode of treating deformities of the feet, by section of the contracted tendons and the subsequent application of regulated extension. The experience of surgeons, since the appearance of his very able work entitled Orthomorphie, in 1828, has amply confirmed the complete truth of the principles which he then laid down, and the soundness of the practice which he based upon them. These principles are comprised in the following rules:—

"1st. 'A tendon to be divided, must not be exposed; and its division should be made by turning the instrument on one side, so that the line of the incision may not be parallel to the division of the skin; without this precaution risk of exfoliation of the tendon is incurred.'

"2nd. 'Immediately after division of the tendon, the divided ends should be brought into contact with each other, and kept in this position by a suitable apparatus during the entire period necessary for their union.'

"3rd. 'Inasmuch as it can only take place by the intervention of an intermediate fibrous substance, this substance, before it has become firm, can, and should be, extended gradually and carefully, until it has assumed a degree of length equal to the shortened muscle.'

"4th. 'When this degree of extension has been effected, the parts should always be fixed in the position, and kept so until the new substance has acquired its requisite degree of consolidation.'" P. 4.

These simple positions may be said to embody the entire doctrine of the treatment of deformities, and, as our author remarks, "have only to be followed out carefully to insure success." Stromeyer, while he admits the general truth of M. Delpech's views, has objected to the third of his positions; viz., that the elongation of the contracted muscle is attributable altogether to the intermediate fibrous substance, deposited between the cut ends of the tendon. He maintains that this elongation is rather effected at the cost of the contractility of the affected muscle; the division of its tendon acting not only on the mechanical, but also on the vital, properties of the muscular fibres. Mr. Tamplin does not, it would seem, entirely agree with the Hanoverian surgeon in this remark. He has repeatedly found the new connecting medium, after section of the tendo-Achillis, to be full two inches in length within three or four weeks after the operation. In cases also of fractured patella, the uniting substance is sometimes, when the limb is used too soon after the accident, three inches at least in length. If such, however, be the case, the patient will inevitably be more or less crippled in the extremity.

"As a general rule, the cicatrix, after the cure is effected, measures but a few lines, oftentimes only a line, in the thickness, provided proper care has been taken during the treatment, which arises from the circumstance, that every new substance, after it has fulfilled the purpose for which it was generated, viz., the restorative process adopted by nature to remedy any wound or injury, loses its vascularity, except so far as is necessary for its individual vitality, contracts upon itself, and draws with it, if unrestrained, the part with which it is connected; as in the painful distortions so frequently witnessed in burns on the neck and face. In the foot I have found the permanent cicatrix full two inches in length (after the operation of talipes equinus;) and a worse distortion produced, viz., the talipes calcaneus valgus, where the foot was placed in position immediately after the operation, and kept for a long time in the flexed position: this position was not, however, maintained, except during the exercise of volition. The elongation in congenital cases, and also in non-congenital cases, of young subjects, is undoubtedly affected eventually at the cost of the contractility of the muscle, but not primarily: this is a secondary result, for no new uniting medium can by possibility possess the power of drawing down the muscle, any more than the newly formed granulations following a burn can do; the cicatrix, as it contracts, certainly does so, but after the foot is brought into position; and hence the linear cicatrix. The force of the contraction of a cicatrix is sufficiently evident in the instances of burns alluded to, not only to draw down and overcome one muscle, but even a set of muscles—as the extensors of the head and neck, or of the arm, and other parts." P. 9.

With respect to the *cause* or causes of Congenital Deformities, it must be confessed, that we really know very little or nothing about the matter. As to the supposed influence of the mother's mind upon her offspring *in utero*, the conjecture scarcely deserves notice; for there is not a shadow of argument that can be adduced in its favour. Our author leans to the opinion that they are generally the result of mal-position of the limbs of the unborn fœtus, in consequence, it may be, of undue or irregular contraction of the uterine parietes upon its contents; and he alludes to the fact—as in some degree favourable to this idea—that such a deformity as that of pure *talipes equinus*—whose origin could certainly not be accounted for in this manner—is never of congenital occurrence. It is generally admitted that by far the most frequent operating causes after birth are in-

testinal irritation and dentition: the latter may act indirectly, by primarily deranging the state of the *primæ viæ*.* Now, if this be the case, why may we not apply the same mode of reasoning to explain the occurrence of some cases, at least, of congenital deformities? Is there not good reason to believe that the meconium of the fœtus is often more or less vitiated; and, if so, why should not this source of irritation act, before as well as after birth, by inducing irregular and spasmodic contraction of certain muscles? But it is unnecessary to say more on this subject; as we have only guesses, not facts, to offer. We shall therefore proceed to examine the practical portions of the present volume. This need not be done at any great length; as in our review of Dr. Little's work on Club-foot, a few years ago,† we gave an elaborate analysis of its contents, and were then enabled, through the kindness of the author, to illustrate the different species of this deformity with excellent wood-cuts. In the present article, we shall devote most of our space to the consideration of other deformities, then unnoticed. It may therefore be considered as in some degree supplementary to the former one; so that the reader will have, in the two together, a tolerably ample summary of the entire subject of Orthopædy.

Talipes equinus or *horse-foot*—"so called from its anatomy corresponding to the natural anatomical relation of the foot of the horse." The patient in walking rests upon the heads of the metatarsal bones; the os calcis is forcibly drawn up; the astragalus is pushed forwards and downwards, and frequently projects on the dorsum of the foot; and the phalanges of the toes are extended, and appear set on at right angles to the metatarsal bones. The reader will have a perfect idea of the position of the member, if he calls to mind the forced and unnatural attitude of the opera-dancer, when she rests upon one foot in her pirouettes and other *merveilles de dance*. This deformity is almost always post-natal: Mr. Tamplin has never met with a congenital case of simple talipes equinus. The usual causes are "the irritation of teething, worms, any derangement of the nervous system, wounds in the calf, rheumatism, scrofulous disease in the ankle-joint, or in the substance or tendon of the gastrocnemius. Not unfrequently, however, this deformity arises spontaneously, the patient experiencing no pain or inconvenience beyond the inability to bend the foot or ankle-joint in the act of walking and retaining at the same time power over all the muscles." The affected limb is generally smaller than the sound one; its temperature too is sometimes lower, especially when there is paralysis of any of the muscles.‡ Whenever this complication exists, we must never promise too much from any operation; as the palsied muscles seldom or never recover their power.

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* In reference to the influence of Dentition in the production of Club-foot, our author observes that the deformity "is often combined with contraction and partial paralysis of the *upper* corresponding extremity; occasionally, however, it is unaccompanied by any other deviation. Frequently, in such cases, there will be found paralysis of the anterior tibial muscle; so that the contraction would appear in these instances to arise from the balance of power being destroyed, and the gastrocnemius being thereby allowed to contract upon itself."

† Medico-Chirurgical Review for April, 1840.

‡ An important practical instruction is deducible from this circumstance.

When, by the division of the tendo-Achillis, the flexor movement of the ankle-joint is restored, "you will occasionally find, as the foot becomes flexed, that it will deviate either to one or the other side; most frequently it will *evert*, forming a sort of talipes valgus; and, upon examining the tendons, the peronei will be found contracted. If, however, it should *invert*, the posterior tibial will be the most probable cause. In either case division of the tendon must be resorted to, or the patient will be thrown either on the internal or external side of the foot, according to the state of the respective muscles. You will not be enabled at all times to discover this tendency previous to the division of the tendo-Achillis. Occasionally, however, you will find these tendons, viz., of the peronei and the posterior tibial, tense in a simple talipes equinus, upon a forcible attempt to flex the foot. If this tension continues after keeping up the forced extension for some minutes, you may be nearly sure that the tendon is contracted; and I would advise division at the same time that the Achilles tendon is divided."

Talipes varus.—"The muscles, which are contracted in this deformity, and are the immediate cause of the mal-position, are, 1st, the gastrocnemius, 2d, the adductors direct, viz., the anterior and posterior tibial, the extensor and flexor of the great toe, as well as the extensor and flexor communis indirectly. The peronei are elongated, or rather kept upon the stretch. The contraction of the ligaments does not apply to infants, but becomes so from position. This deformity is both congenital and non-congenital; but in a large proportion it is the most common form of congenital deformity. In the congenital, you will find no paralysis; in the non-congenital, paralysis of one or more muscles will very generally be found; and this applies to almost every non-congenital deformity. I have never seen a congenital paralytic affection of any of the muscles in any deformity, nor do I believe that it exists. In the infant you will find the size of the affected limb correspond with that of the well-formed and perfectly proportioned one; but of course, as the child grows, the foot remaining in its false position, and the play of the muscles in that foot being most limited, the muscles, as a natural consequence, become developed but very slowly; and as the child continues to grow, the limb presents the appearance of an atrophied extremity, the natural outline of well-developed muscles being entirely absent; and yet all this arises entirely from want of use, as no paralysis exists, nor any loss of the voluntary power. The temperature of the limb is natural, but the foot does not resist the effect of cold so well as the naturally-placed foot; but this, I imagine, is entirely owing to its passive condition, and not from any diminished nervous power, or loss of its proper tone, as it is not merely the motion of the ankle-joint that is limited; the muscles which move it are of necessity scarcely, if at all, able to perform their functions." P. 46.

"The temperature of the entire limb during the treatment is occasionally much reduced, so that it becomes very necessary to pay attention to this, as, by neglecting the temperature, comparatively slight pressure will often produce a slough, and then a wound tedious and troublesome to heal, and during the open state of which it will be necessary to suspend the treatment. * * * In cases," continues our author, "where I have had to encounter these sloughs, I have found the best method of treatment to be, to support the foot entirely by means of strapping: you thus prevent the weakened capillaries from becoming over distended; and if the vitality is not completely gone, the part will recover itself. And even should the vitality be destroyed, the threatened slough will frequently dry up, and terminate without any open wound." P. 40.

In a large proportion of cases of *varus*, the deformity exists in both feet. From their incapacity of regular and due exercise, the muscles of the affected leg always become considerably, and oftentimes exceedingly, atrophied. The ligaments of the knee-joint, also, are frequently so much relaxed, that the tibia may be partially rotated upon the condyles of the femur. Not unfrequently, too, the vertebral column becomes more or less irregular in cases of single varus, in consequence of the great leaning over of the body to the affected side.

Mr. Tamplin has never seen a decided or permanent cure of *varus*, even when the deviation has been slight, by the use of any mechanical contrivance applied to the foot or leg, without section of the contracted tendons. He is an advocate for the early performance of this operation in congenital cases. "I have frequently," says he, "performed it on infants of not more than five weeks of age, and should always recommend it to be done at this early age when opportunity offers."

In every confirmed case of Talipes varus it will be necessary, according to Mr. Tamplin's experience, to divide the tendons of the *gastrocnemius*, *tibialis anticus* and *t. posticus* muscles; and the plantar facia also, if this be found decidedly contracted. The tendon of the posterior tibial muscle should be first divided—as the gastrocnemius serves to keep the foot steady. As this operation is far from being easy when the leg is fat, we shall give our author's description of it:—

"The method," says he, "that I have adopted is the following:—let the child be laid horizontally on its back; and let the leg to be operated upon be everted so that you have the inner side facing directly upwards; you thus have the tendon directly before you; you will then feel for the tendon, which in a thin child can easily be felt to rise under the finger upon any attempt to abduct the foot. In a fat child, however, you will not be able to do so, for you must recollect it is the edge of the tendon which presents itself, and not the flat surface. The guide I then find successful is the internal edge of the tibia (which can at all times be felt with more or less pressure,) and the tendon, as you are aware, lies directly behind it, and close to it. Having, then, the foot and leg firmly held by an assistant, you place the thumb of the left hand on the edge of the tibia, or close to it; you then, with a small scalpel, puncture the fascia by passing it perpendicularly down, and with care, or you pass the instrument too far, and puncture an artery. But if you do it slowly and cautiously, you will be enabled by a sort of grating sensation to feel the fascia, in which you make a small slit; you then withdraw the scalpel, and introduce the blunt-pointed knife in a perpendicular direction also, or you will get on the tibia on one side, behind the tendon on the other, from its close approximation to the bone. As soon as you have got the knife before the muscle, or what you imagine to be so, depress the handle, and satisfy yourself, by the resistance, that it is so: turn the sharp edge to the muscle, and divide it, directing the assistant at the same time to forcibly abduct the foot. You are aware that the artery lies very near to the posterior tibial and flexor digitorum muscle, and if you do not exercise great caution and judgment as to the distance, you may divide that also, which it is prudent to avoid; although at present we have seen no ill effects from complete division of the artery, yet we are not to imagine such will be always the case. You may form some idea of the proper distance by letting the knife touch the edge of the tibia first, then pass it onwards about a quarter of an inch, and divide the muscle. You must recollect that in infants muscular fibre exists almost down to the internal malleolus, so that the division will not give so sudden a sensation as of the division of tendon alone; but in all cases, I am confident, if the muscle is divided, the sensation

must be communicated to the hand of the assistant. After having divided this muscle, place a piece of lint on the point of puncture, and keep the finger on it, and then proceed to divide the anterior tibial." P. 56.

The after-treatment of the foot requires most assiduous attention; and, unless the member be kept night and day everted or adducted by an appropriate instrument, there is always a strong tendency to a relapse, in consequence of the *peronei* muscles having become weakened by their long and forced extension.

The time required for treating a bad case of Talipes varus will be found to vary, according to circumstances, from two to ten months.

Talipes Valgus, flat or splay foot, is the very reverse of *T. varus*. The post-natal species of this deformity generally occurs in weakly persons, who are a great deal upon their feet, more especially when they are obliged to carry heavy burdens at the same time. The muscles that usually require to be divided—for Mr. T. has never seen a perfect or permanent cure effected by the mere use of any mechanical contrivance—are the three *peronei* and the *extensor communis digitorum*. In some bad cases, even this is not sufficient. As an example, take the following report:—

"A patient, 15 years of age, was born with this deformity in both feet, and about two years since was operated upon and treated mechanically without relief. The patient was totally unable to walk, from the great pain occasioned when the feet were subjected to the weight of the body. Upon attempting to adduct the feet, the peronei and common extensor were rendered extremely tense; upon attempting to flex the foot, the tendo-Achillis was also tense; and upon an attempt to depress them, the anterior tibial and extensor proprius pollicis were also tense, there being the smallest possible amount of motion in the joint, and that of an unyielding character. I therefore proposed the division of the tendons of the whole of these muscles as the only prospect of relief, which was assented to. I first divided the peroneus longus and brevis, then the extensor communis, digitorum, and peroneus tertius, afterwards the anterior tibial and extensor proprius pollicis, and lastly the tendo-Achillis. Lint and bandages were applied, and allowed to remain on a week, the patient having suffered no pain beyond that immediately following the operation. At the end of that time I applied one of Scarpa's shoes, and flexed and extended the foot alternately night and morning, so that the uniting medium of each tendon might be acted upon, the foot being adducted the whole time. At the end of three weeks the motion of the joint was restored perfectly, and the patient possessed the power of flexing and extending it at will." P. 77.

Genu valgum, or *knock-knee*.—This deformity is almost always of post-natal origin: Mr. Tamplin has never met with a congenital case. It may very generally be traced to debility, either hereditary, or the result of painful dentition, fevers, hooping-cough, &c. Long standing will necessarily aggravate the mal-position, if once there be any tendency to it; the weight of the body, pressing down in an oblique direction, must have the effect of approximating the knee-joints. It is a very common deformity among the poor, and is often associated with irregularities of the spine, or with rhachitic curvature of the bones of the leg, and, frequently, of the femur also. Sometimes one knee only deviates from its proper direction; but in most instances both joints are affected. Occasionally the deformity in one knee is accompanied with outward inclination of the

other, giving the patient a most curious appearance, in walking, of one joint running after the other. *Genu valgum* is frequently combined with spurious valgus of the ankle-joint. The internal condyle of the femur always appears considerably larger than usual; but this is only in appearance; there is no positive increase in the size of this osseous protuberance. The internal lateral ligament is always much stretched, and the crucial ligaments also are generally relaxed and elongated. Hence it comes that the articulating surfaces of the femur and tibia are much more loosely tied together than in health, so that even a certain amount of rotatory motion can be exercised between them. "As the deformity continues, you will find the biceps, flexor femoris, from being constantly somewhat shortened, offer more or less resistance, which resistance becomes proportionably increased according to the length of time it has existed, on the one hand; the state of health of the patient, on the other: so that even in children you will find this muscle, together with the fascia lata, to which the vastus externus is attached, exceedingly rigid and tense upon any attempt to place the leg forcibly in a straight line."

Treatment.—In weak ailing children, when the deformity is slight, we must trust chiefly to the improvement of the general health by the use of alteratives, mild chalybeates, and a nourishing diet. The use of the rocking-horse is of service; as the child, in clinging to it, naturally adducts the legs, and thus everts the knees. A straight wooden splint may be applied to the limb through its entire length, and secured with straps and bandages. If the deformity be more decided, Mr. Tamplin recommends the employment of a particular splint, made of two zinc plates; the one plate to correspond with the thigh, the other with the leg; but, instead of a screw, a straight piece of iron or wood attached by a hinge to the centre of each of the portions of the splint on the outside. The zinc from being soft, admits of being applied close to the limb, and can be fixed by means of strapping in the position in which the joint is; a webbing strap passed round the knee and over the connecting piece of iron will, by gradually tightening it, effectually straighten the limb. In some I have also added a joint in the centre of the iron to correspond with the knee-joint, so as to allow of flexion and extension, but I prefer the knees being kept extended.

The division of the tendon of the *biceps flexor*, although it would unquestionably expedite the cure, should not be resorted to, unless the tendon be found very tense and resisting. The peroneal nerve is liable to be cut in the operation. This *malaventure* occurred in two of our author's cases. In both, paralysis of the flexors of the foot was the result; but this gradually passed away in the course of from four to ten weeks, and the patients eventually regained the entire use of their feet. After the wound of the integuments has healed, "you then apply the splint, and proceed with the extension more or less rapidly, according to the severity of the case, the rigidity met with, and the pain experienced by the patient; for I need not tell you, that the restoration of the limb to its natural position, after years of its being kept in the mal-position, is always attended with pain; the pain, however, should never be allowed to interfere with the appetite or rest of the patient: this you may regard as a guide in the treatment. I

am now speaking, recollect, of the pain in the joint itself, not that which may be occasioned by undue pressure, which last ought to be immediately relieved; you must at all times be careful that the pressure is uniform throughout the entire extremity, as you may be inconvenienced, and have the treatment retarded, by a slow and open wound. After the limb is restored to its perfectly straight or natural position, you will order upright supports from the hips downwards, and keep the knee-joint in the straight position during the time exercise is taken: the leg may be flexed and extended at other times. These supports must be continued night and day, until the patient is enabled to stand and walk without the joints yielding, and must not be omitted before, as a relapse will certainly be the consequence, independently of prolonging the treatment."

In some severe and aggravated cases of knock-knee, it is occasionally necessary to divide the *vastus externus* and the *fascia lata* immediately above the external condyle of the femur, as well as the tendon of the *biceps*.

With respect to the use of irons in the treatment of knock-knee, the following practical observations of our author merit notice:—

"In slight cases, in the adult or youth, irons alone, the knees being kept straight, perfect the cure of this deformity, and in a short time, compared with the more severe. * * * It is of no use to attempt to straighten the legs solely with irons, if the deformity exists to any extent, as the legs will rotate in them, and the thigh and leg become everted, which disguises, but does not relieve the deformity. Irons are only of use in severe cases, after the legs are straightened, in maintaining the position, by assisting the joints to bear the superincumbent weight of the body during the time they are incapable of doing so unaided, and allowing exercise to be taken whilst the ligaments are gaining strength, which exercise improves the general health and strength of the patients, and enables them to follow their usual occupations without risk of relapse," P. 128.

Genu extrorsum is invariably combined with bow-leg, or curvature outwards of the tibia and fibula. It is very common in weak rhachitic children. With respect to treatment, we need not say that the general health must be diligently attended to, and that every thing must be done to invigorate the constitution.

"The mechanical means we adopt consist of straight splints on the inner side of the leg, extending high up above the knee, and below the internal malleolus, well padded at the points of pressure, and webbing straps applied round the leg and splint, so that a constant steady pressure may be kept up; it is only by the most gradual and uninterrupted treatment that good can be obtained, for you must recollect that not only the knees, but the bones also are affected, and a child cannot bear any amount of continued pressure; it must be so applied that the child is subjected to no pain. This rule must invariably be your guide; you can in this way in young subjects overcome the deformity, and if the splints are carefully applied, the little patient can walk with greater comfort and firmness with them than without them. Irons have been and are daily used; I object to them, because you cannot keep up such uninterrupted support as you can with a webbing strap and splint, and without this, of course, all treatment is useless. It will occupy many months, which it is as well to inform the patients or friends, as they will become impatient and dissatisfied. With regard to those who have been thus afflicted for years, when the bones are consolidated, it is a question if

you should try or advise any treatment: you must recollect the articular surfaces are not in fault; therefore, if you straighten the leg at the expense of the articular surfaces, you cannot expect the patient to be enabled to manage without a support. We have had one patient in the Charity, above twenty-six years of age, who was determined to have something done, and who submitted with the prospect of wearing irons for life; in this case I divided the semi-membranous and tendinous tendons, straightened the legs about half, by means of the splint which I adopt in knock-knee; the splint being applied on the inner side of the leg. A great improvement in his appearance is the result, but not such as would have induced me to have submitted to the treatment, or advise its being done in similar cases." P. 133.

Contraction of the Knee in the flexed position.—This deformity is very rarely congenital. Most frequently it is the effect of injuries or idiopathic diseases of the joint or its envelopes. At other times it is a result of paralysis or permanent spasm of the muscles of the thigh, induced by injuries or a morbid state of some part of the cerebro-spinal axis. As the flexors are more powerful than the extensors, they predominate, and keep the joint in the bent position. But in addition to this cause, there may be more er less firm adhesions within the joint itself. If such be the case, all motion, even further flexion, of the joint is impossible, or at least very much limited; whereas, when the cause of the stiffness is external to the joint, we can generally bend it somewhat more than it usually is, although all extension may be impracticable. The circumstance too of the hamstring tendons becoming more tense, on our attempting to extend the joint, is an important diagnostic symptom: as this may be supposed to indicate that the chief resistance resides in these muscles.

Mr. Tamplin's remarks on Scrofulous disease of the knee-joint, or White Swelling, are somewhat peculiar: for he seems to contend that, even when there is destruction (ulcerative we suppose) of the cartilages and bones, amputation of the limb is very rarely called for; the diseased action being not of a truly malignant nature.

On the important subject of treatment he says:—

"It requires the joint to be kept at rest, or nearly so, and a uniform support to the entire limb; the natural temperature maintained, and the general health supported, and this most uninterruptedly followed up. By these means I believe that most diseases of the joints, in young subjects, provided they are not malignant, which I do not believe they can be considered, may be cured; and even if the patients have suffered from destruction of the joints and of the bones, or that portion forming the articulating surfaces,—although all motion may be out of the question,—yet I distinctly maintain that an ankylosed knee, with the use of the foot, is far preferable to a wooden leg. The most favourable position may be selected during the period the restorative process is going on. In the majority of cases of strumous disease, the joint itself is but slightly affected, although the surrounding parts are one mass of disease. The inflammation consequent on the irritation of that disease is of a very chronic character, and does not appear in those cases to risk the integrity of the joint, although there may be, and generally is, an increased secretion of synovia, but beyond this the joint does not appear to suffer; at least, in an immense number of cases. I have witnessed the most frightful amount of disease, appearing in a superficial view to exist in the joint itself, and yet the joint remain perfectly sound, with the exception of the increased quantity of synovia." P. 150.

These statements, we fear, will not command general assent. As long, indeed, as the general health does not materially suffer from the articular

disease, every means should be employed to save the limb, and none are better than those recommended by our author; but surely he would not delay having recourse to amputation, if symptoms of hectic irritation and wasting had once fairly set in, and resisted the employment of all remedial means. Certain it is, however, that, even under these unfavourable circumstances, a patient will sometimes recover with an anchylosed joint; but this is not common. The following case was one of those happy exceptions: the treatment reflects much credit on Mr. Tamplin's skill and perseverance:—

The girl, about 8 years of age, was sitting on the bed in the most miserably emaciated condition, and was stated to have been suffering from disease in the knee between two and three years. There were five openings, two on the outside, just above condyles, one on the inside, and two on the patella. The three first communicated with the femur, the two last with the patella. The parents stated that at least half a pint of matter was discharged daily. Of course this was somewhat exaggerated, but an immense discharge was then evident, of that peculiar, thin, unhealthy secretion, common in scrofulous diseases. The knee was contracted beyond a right angle, so that you could not pass a thin piece of spongè between the leg and thigh, in the situation of the popliteal space. The knee itself was swollen, and distended with fluid. She was suffering from acute hectic fever, with profuse perspiration and severe pain on the slightest motion. The pulse was fluttering, the bowels relaxed; in fact, the child presented the appearance of a person in the last stage of consumption. I ordered her an opiate, with the hyd. cum creta, every night, the conf. aromat. and ext. cinch. three or four times a day, a soft linseed-meal poultice, made by stirring the meal into boiling water, over the whole of the knee-joint, covered with oiled silk. A tin splint, bent at the angle at which the knee was flexed, with pads, and retained by means of a flannel bandage, from the toes upwards above the knee, thereby keeping up the natural temperature of the entire limb, as well as a uniform gentle support; together with a nourishing diet, consisting of eggs, milk, meat, beer, and then two glasses of port wine daily, commencing the stimulants by degrees. In a few days the general irritability subsided, and the pain in the knee was relieved, the hectic left her, and the discharge altered its character. In fourteen days she could be moved without a complaint.

"This treatment was continued six months, varying the tonic, at the end of which time all the openings were closed, and the swelling of the joint almost gone. The leg was extended in the most insensible manner, by gradually straightening the splint during the period the disease was subsiding, and without pain being produced. As soon as the openings were healed, I supported the joint with emp. cerat. saponis, and continued the bandage and splint, and in twelve months the leg was brought into the straight position, and the girl could use it without any assistance. I then directed the joint to be exercised daily, by forcibly flexing and extending it, as far as the feelings of the child would admit, and in this way the motion of the joint was restored, the muscles of the thigh and calf developed themselves, and a perfectly useful limb is the result. In this case amputation was advised by several surgeons as the only means of saving the child's life." P. 152.

The best way of effecting gradual extension of a flexed knee, when this is deemed advisable, is by means of a double splint for the thigh and leg, having a hinge in the ham, and provided with a male and female screw beneath. If the deformity does not yield, then we must have recourse to section of the tendons of the inner and outer hamstring muscles, and of any dense bands of fascia that may be felt. After the knee has become ex-

tended, it may be necessary to divide the tendo-Achillis, to relieve the motions of the foot.

Contraction of the Knee-joint in the extended position is not a common affection, either congenital or post-natal. In one congenital case, Mr. Tamplin divided the *rectus* muscle, about an inch and a half above the patella, with decided benefit:—"the result has been most satisfactory." It will always be right to try the effects of gradual mechanical flexion by means of a male and female screw attached to the double splint, in cases occurring in consequence of inflammation or any other affection of the joint, provided always the flexion can be effected without great force. We may fairly presume that our author condemns the recent practice of some French surgeons on this point, when we find him expressly saying that "in cases which have arisen from adhesions in the joint, when the joint *is* immoveable, and when, upon forcibly attempting to flex it, no pain is experienced, I would not advise your having recourse to any means of restoration, as the patient possesses a limb that is comparatively useful, although limited in its motions; whereas, if you rupture the adhesions, the probability is you will not eventually improve the condition of the patient—at least, I have not seen any permanent good arise from such treatment: although you may succeed in flexing the joint for a time, yet the chances are that it will return to its former state, as it can scarcely be expected that the secretory surface of the synovial membrane, or that the ruptured extremities will assume a condition compatible with free motion."

Contraction of the Hip-joint is generally the result of cerebral or spinal irritation, injury to the spine, position, rheumatic or idiopathic arthritis, or of strumous disease in the joint or its neighbourhood. The limb is often adducted, so as to be drawn over the other one, at the same time that it is fixedly bent; and not unfrequently the feet also are deformed. In incipient cases, Mr. T. recommends that a trial should be made of an instrument which he has contrived, and "which, by its fixing the pelvis, and being also attached by the broad webbing strap to the chest and abdomen, will enable you to keep up any amount of extension on the thigh, first bandaging the foot, leg, thigh, and hip, with a flannel roller; for, as I mentioned to you when speaking of scrofulous disease of the knee-joint, unless the natural temperature is kept up, the restorative process cannot go on.

"In cases occurring in the poorer classes, whose means do not allow of their procuring an instrument, I have had recourse to a straight board, corresponding with the size of the back, with an extended portion to correspond with the thigh contracted, webbing straps being nailed on each side of the board, so that the abdomen, chest, and pelvis, may be secured tolerably well; of course a pad must be used, to prevent any undue pressure being made. With this I have succeeded in bringing down the thigh, and preventing a contraction from taking place. You cannot, of course, restore any amount of motion, and your attention must therefore be directed to bringing the thigh straight with the pelvis, which enables a patient to use the leg with comparative ease, and without the use of crutches. In young subjects, provided the disease has subsided, and a

short time only has elapsed, the contraction may, as a rule, be removed without an operation, but if in the course of extension any of the superficial muscles are found to be rigidly tense, a division of them had better be effected."

In one case, where the thigh was permanently flexed at a right angle—the result of a disease in the joint—Mr. T. divided the *rectus*, *adductor longus*, and *tensor vaginæ*; and, after the healing of the punctures, he kept up a steady and gradually-increased extension of the limb. The result was partially successful; for the limb was brought into a semi-bent position, so that the boy could get about tolerably well with the aid of a stick, whereas, before, he had been always obliged to use crutches. Allusion is also made to another patient, æt. 14, in whom the *adductor longus* of each thigh, the flexors of both knees, and the tendo-Achillis in each foot were divided, and who "is now walking about with comparative ease." The surgeon, therefore, is not to be discouraged even under very unpromising circumstances, provided he has reason to believe that the joint itself is not seriously altered.

The deformities hitherto described have been those of the lower extremities. The 11th, 12th and 13th Lectures are devoted to the description of Curvatures and Distortions of the Spine; but, as this subject engaged our attention in the last number of the Review, we need not resume it at present. All that we shall now do is to make a few observations on one or two practical points.

The general character of Mr. Tamplin's therapeutic directions leads us to suspect that he is much more friendly to the continued use of mechanical supports, in the treatment of spinal deformities, than most enlightened surgeons in the present day are in the habit of recommending. For example, in the treatment of confirmed posterior curvature, when the vertebræ are found upon examination to be rigidly fixed, he advises that "an instrument,"—consisting of a band round the pelvis, two side crutches for the shoulders, a back-board for the entire length of the spine, and a head-support—"should be worn night and day; as, unless the extension is constantly maintained, little if any good can by any possibility be effected:" it is added, "a continued pressure can be kept up upon the prominent portion of the curve by the backboard attached, and the shoulders held back by straps."

We pity the poor patient, who is doomed to sleep thus "cribbed, cabined and confined." Nor can we believe that such treatment is ever necessary, except in some extreme cases of caries of the vertebræ.

In slight cases of lateral curvature, Mr. T. recommends the use of Tavernier's belt. "This instrument, if properly applied, and carefully kept in its position, will cure any slight case of curvature by the constant support and pressure that it is capable of effecting on the projecting ribs. It must, however, be worn night and day, so that no return of the spine to the mal-position is admitted of; as here, as well as in the deformities I have previously directed your attention to, unless the position is constantly maintained, the ligaments cannot recontract, neither can any resistance which those on the concavity of the curve offer be overcome: this therefore, is indispensably necessary."

This advice is altogether most injudicious. Tavernier's belt, although

less injurious than many other instruments, is far from being unobjectionable. The constant pressure that is kept up upon the muscles of the projecting side, is itself no small disadvantage. It is obvious, too, that if there be any tendency to a second curvature in the opposite direction lower down in the spine, the continual use of the belt in question may rather aggravate than lessen the evil. The only manual exercise, we may remark, which our author approves of, is the use of a common pulley, fixed in a convenient position, for the arm corresponding with the concave side of the spinal curvature.

"I most decidedly object," says he, "to the exercise of the muscles on both sides of the spinal column, during the time the curve is in existence, as is most commonly done in a variety of amusing, and not less expensive ways to the patient, as by so doing a direct obstacle is maintained, and kept in active operation to prevent the removal of the curvature—a practice so opposed to common sense that one is at a loss to assign a reason for it, and a practice entirely opposed to the course adopted, and found to be of such essential importance, in the treatment of other deformities without exception." P. 236.

Our author is too sensible a man to give his assent to the preposterous practice of dividing any of the dorsal muscles in the treatment of lateral curvature of the spine; the honour of this invention is purely French.

The last Lecture treats of Wry-neck, and Contractions of the lower jaw, and of the arm and hand. Our notice of these deformities must be very brief. The usual causes of *Wry-neck* are rheumatic inflammation of the sterno-mastoid, paralysis of the same muscle, and disease of the cervical vertebræ. The paralytic affection of the muscle is apt to be produced by dentition, worms, or any of the numerous causes which interfere with the health of a child. The deformity is very rarely congenital. The muscular contraction is limited sometimes to the sternal, at other times to the clavicular, portion of the sterno-mastoid. When it is deemed advisable to have recourse to section of the muscle, the operation must be performed with great care and delicacy, in order to avoid any of the important vessels of the neck.

The following case of rigid *Contraction of the Lower Jaw* is interesting: Its successful treatment reflects the highest credit on Mr. Tamplin's skill.

"Sometime since I was consulted by a patient, aged 11 years, whose mouth was, and had been for two years rigidly closed. Upon introducing my finger in the angle of the mouth, a dense indurated cicatrix was found to exist on either side, which effectually prevented the patient from opening his mouth in the slightest degree. His mother stated that for the period mentioned he had lived by suction only. Many surgeons had been consulted, but all had given an unfavourable opinion. I determined to divide the cicatrices by a puncture externally, which was done in the following manner: The patient was laid on a table, the head being supported with a pillow, an assistant holding the head. I introduced a small scalpel perpendicularly upon the middle of the masseter muscle; then withdrew it, and inserted a long narrow blunt-pointed knife, carrying it down to the bone, depressing the handle so that I could pass it horizontally forwards, until I felt the point at the anterior edge of the cicatrix, to the outer side of the mucous membrane, which I was enabled to do by keeping the finger of my left hand within the angle of the mouth. I then turned the sharp edge towards it, and gradually divided the band transversely. By this proceeding the mucous membrane of the mouth was left uninjured, the cicatrix alone being

divided; so that there was no possibility of hæmorrhage. Pledgets of lint were applied over the point of puncture, as well as over the line of incision, and secured with strapping and bandage. Scarcely any pain followed the operation; and, although only one cicatrix was divided, the boy could open his mouth to the extent of about the eighth of an inch.

"Four days afterwards the puncture was healed, when I divided the cicatrix on the opposite side in a similar manner, and with a similarly satisfactory result. At the end of four days following the last operation, I applied an instrument made to fit the teeth of the upper jaw, which acted as a fulcrum, and with small narrow blunt steel hooks, which I introduced over the teeth of the lower jaw, and afterwards attached to the instrument by means of a screw, with which I gradually opened the mouth. During the night the instrument was removed, and small wedges of ivory were introduced, to which were attached pieces of tape, so that there should be no possibility of their getting into the mouth or throat. At the end of fourteen days, the boy was able to eat any kind of solid food, and, from his mother's account, was eating the whole of the day. He rapidly improved in health and strength, and, with a continuance of the use of the instrument, the cicatrices became gradually absorbed." P. 250.

The remainder of the last lecture is occupied with a description of the contractions of the shoulder, elbow, and wrist-joints, and also of the fingers and toes. It is not necessary to detail particulars; and here we must close the present article.

On the whole, this work of Mr. Tamplin's may be consulted with much profit by the surgical reader, and we therefore strongly recommend our professional friends generally, and especially such as reside in the country or are at a distance from an orthopædic institution, to have a copy of it beside them. In the event of a second edition, the author will do well to make more frequent references to other writers upon the subjects discussed, and to compare his own opinions and practice with their's. This is but fair to them as well as to himself.

ELEMENTS OF THE COMPARATIVE ANATOMY OF THE VERTEBRATE ANIMALS, DESIGNED ESPECIALLY FOR THE USE OF STUDENTS. By *Rudolph Wagner*, M.D., Professor of Comparative Anatomy and Physiology in the University of Gottingen, &c., &c. Edited from the German, by *Alfred Tulk*, Member of the Royal College of Surgeons of England. Octavo, pp. 264. London: Longman & Co. 1845.

THE peculiar advantage of Comparative Anatomy is, that by the extended range of its inquiries, and by the number of its facts, it reveals to the student the fundamental laws of organization, and thus enables him to detect principles of formation which are masked beneath the complexity of human anatomy. Combined with embryology, it also establishes in the fullest extent the universality of typical forms, and proves by evidence that cannot be mistaken the unity which pervades the animal creation. But to produce results of this magnitude, comparative anatomy must be cultivated in a connected manner and in an enlarged spirit; that is to say, the same system of organs must be examined in different animals;

points of resemblance and diversity must be scrupulously noted; unknown forms must be compared with those which are known, so that their true character and relations may be seized and determined; and more than all it is essential, by a rigid system of mental training, to acquire that acumen which, in the midst of seeming resemblances and apparent differences, enables the observer to discern the truth and to enunciate the great principles of animal formation. The Hunterian Museum is not only valuable on account of the matchless specimens it contains, but more especially because, by *its plan*, it has taught zoologists the true end and scope of comparative anatomy. This plan consists in exhibiting, by an extensive series of preparations, the forms and structure of each particular class of organs, those of digestion for instance, tracing them from their most simple to their most complex development, and thus following them in a connected manner from the lowest to the highest animal; a mode of procedure which has since been adopted and extended in the admirable Leçons of Hunter's illustrious successor, Cuvier.

The scope of the work before us is however of a more limited character; it aspires only to present a kind of catalogue raisonnée of the individual organs as they exist in the vertebrata. A manual of this kind, accurate as to its facts, and judicious in its arrangement, is nevertheless a most useful production, serving to introduce the student to what is in itself unquestionably one of the most interesting branches of human research. The deservedly high reputation of Professor Wagner is a guarantee that the indispensable qualities we have noticed will not be wanting; and we are for these reasons glad to find that Mr. Tulk has presented to the English reader a translation of his "Lehrbuch der Zootomie," which is in fact a new edition of the author's earlier work, entitled "Lehrbuch der Vergleichenden Anatomie." The reasons which have prompted Mr. Tulk in his selection are thus explained:—"The want of some good elementary work in our own language, at least of one that, within a small compass and reasonable price, should express the amount of our knowledge upon the Anatomy of the several classes of Vertebrate Animals, was the chief inducement to my undertaking the translation of the present work, in the selection of which I was encouraged by the very favourable light in which Dr. Rudolph Wagner had been already made known to the Medical Profession through his 'Elements of Physiology,' so ably edited by Dr. Willis. The thorough practical knowledge which he possesses of his subject, combined with the clearness and brevity of his style, render indeed his works the very best introductions that are extant to the sciences of Physiology and Comparative Anatomy."—*Advertisement.*

In noticing a work of this elementary character, we cannot of course give any general views on animal organization; we must therefore content ourselves with laying before our readers a few detached extracts descriptive of some of the more interesting among the various organs, which will serve at the same time to convey an idea of the scope of Dr. Wagner's manual.

The details respecting the vascular system are, for a work of this nature, ample, and the student will find, as in other parts of the treatise, many new facts introduced. The careful investigation of the heart and great vessels as they exist in reptiles, affords many important elucidations res-

pecting the malformations of the same parts in the human body. Thus we find in the chelonia that the ventricle apparently single on the exterior is internally divided into two cavities by a septum, which is however more or less perforate; whilst, in crocodiles, the two ventricles are completely separated by a strong septum from each other, though a partial admixture of the venous and arterial blood still takes place in consequence of a communication between the two great arterial trunks. Conditions like these are occasionally seen in malformations; and it is interesting to remark, which we have ourselves often done, that when the two ventricles of the human heart communicate, the perforation is at the base or upper part of the septum cordis, or precisely at that part which is the last to be closed up both in reptiles and in the development of the heart in birds and mammals.

The veins of the abdomen in the three lower classes of the vertebrata offer very important evidence as to the true character of the renal secretion. In all these animals, that is to say, in birds, reptiles, and fishes, the portal system is double, one part belonging to the liver, and the other to the kidney; the former, or hepatic, consisting more especially (and this is an interesting distinction) of the splenic and mesenteric veins returning the blood from the digestive organs; whilst the latter, or renal, more varied in its formation, receives its blood, in a general way, from the pelvis, from the posterior extremities when these exist, and from the walls of the abdomen. There is thus in all these classes a peculiar set of vessels going to the kidney, in addition to the emulgent artery and vein; the signification of which arrangement was first expounded by Mr. Bowman, in his admirable work on this organ. Without dwelling upon details which would be here misplaced, we will only remark that the large *afferent* or reno-portal vein, usually situated, as in the frog, towards the outer and posterior part of the kidney, penetrating the organ, divides into branches, which, uniting with the *efferent* vessels of the Malpighian bodies, form an intricate capillary plexus displayed over the walls of the urinary tubules, and doubtless engaged in the act of secretion: the *efferent* vein of the kidney is formed by the terminal branches of the above plexus, and thus returns to the system of the inferior cava, the residual blood carried to the organ, both by the renal artery and by the afferent vein. It is in this manner proved that a part at least of the urinary secretion is derived, like the bile, from venous blood, a fact of the deepest interest as regards the metamorphoses of the body, and which, it is not too much to assert, could never have satisfactorily been determined without the aid of comparative anatomy.

The vascular system offers many other remarkable modifications which throw much light on the powers concerned with the circulation of the blood and lymph. One of these consists of what are called lymphatic hearts, and of which the following is a good description:—

"The pulsating *lymphatic hearts*, which have been discovered chiefly in the ischiadic region of the Frogs, Salamanders, Serpents, Tortoises and Crocodiles, constitute one of the most remarkable peculiarities of the present system in Reptiles. They are provided with muscular walls, the fibres composing which exhibit under the microscope the peculiar transverse striæ characteristic of the voluntary muscular tissue. The posterior pair of these hearts may be seen externally pulsating very distinctly immediately beneath the integument covering

the ischiadic region in the Frog; they discharge their contents into a branch of the ischiadic vein; situated more deeply above the third cervical vertebra, lie the anterior lymphatic hearts in the same animal, and they appear to impel their contained fluid into a branch that opens into the jugular vein. These organs appear to be largest in the Chelonia, where, placed invariably behind the superior extremity of the iliac bones upon the origin of the semitendinosus muscle, measure an inch in diameter, and receive lymphatic vessels of the thickness of a quill; they pour their lymph into a vein that forms a twig of the reno-portal vein." (*L. c.*, p. 168.)

The lymphatic system of fishes, known since the time of the Hunters and Monros, is said to have a more extensive distribution than was hitherto suspected. Professor Wagram observes:—

"Peculiar *Caudal* and *Cranial sinuses* and a special *system of Lateral vessels* were recently discovered in Fishes, and seem to belong to the lymphatic system. Beneath what has been formerly described as the lateral or mucous canal of the integument, we find another sinus-like canal that is filled with a clear and limpid lymph, and communicates with a number of adjacent branches, all pursuing a subcutaneous course, and forming a ring of vessels around each scale, so that the body of Fishes is completely intersected by this net-work. This system of vessels communicates with a peculiar caudal sinus, that is placed in many Fishes, as the Eel, in the same situation as the caudal heart, which will presently be described. This sinus is double, the divisions lying close upon either side of the flat rays supporting the caudal fin; but both of them communicate by means of a transverse canal that passes through an opening in *one* of the fin-rays. The sinus varies in size, and passes into the caudal vein, being there provided with a valve. It is invested by a strong fibrous tunic, and contains a clear lymph: whether it is endowed with powers of expansion and contraction has not yet been determined. A similar sinus has been observed upon either side the cranial cavity external to the jugular veins; it is pear-shaped, smaller than the caudal sinus, and appears to be contractile. The occurrence and position of these reservoirs remind us very much of the lymphatic hearts of the Amphibia." P. 242.

The caudal heart of the eel above alluded to propels the blood into the caudal vein: it is double, is placed on each side of the last caudal vertebra, and can be seen in action by holding up the tail of the living animal to the light: it is said to occur also in muræenophis. Besides these venous cardiac appendages, there are even accessory hearts connected with the arteries in some fishes: "thus in chimæra an elongated fusiform *accessory heart* is always developed upon the two axillary arteries destined to supply the pectoral fins. Similar axillary hearts also occur in Torpedo, but not in Raia."

The most numerous of these cardiac appendages are, however, met with in that anomalous animal the Amphioxus Lanceolatus or Lancelet, which, although a vertebrate creature, has quite colourless blood without corpuscles, and in which no distinct evidence of a brain has been detected. Besides the ordinary arterial heart (which wants the pericardium,) there are bulbilli representing the branchial arteries; contractile aortic arches; a long tubular portal heart on the ventral side of the intestine; and, lastly, a heart of the vena cava, which lies on the opposite or dorsal side of the intestine. These venous hearts contract alternately, and the whole vascular system, according to the author, recals that in the annelida, where numerous pulsating heart-like vessels also occur.

The section treating of the vocal apparatus in birds we have perused with much pleasure. We need scarcely remind our readers that, in this division of the animal kingdom, with a few limited exceptions where the voice is entirely absent, there are a superior and an inferior larynx, the latter of which is unquestionably the true vocal organ, and consequently presents the greatest variety of structure in different birds. The superior larynx, situated as usual behind the tongue, is a sufficiently complex organ, consisting of from four to ten osseous or cartilaginous pieces, corresponding, according to Wagner, to the cartilages of the human larynx, and acted upon by three pairs of muscles which are constant. After pointing out the great length of the trachea, which is composed of from 20 to 70 rings (in passerine birds,) to one, two, and even three hundred rings (among the natatores, grallæ and struthionidæ,) and noticing the remarkable spiral convolutions often met with in this tube, either placed within the keel of the sternum or in its vicinity, the author thus describes the true vocal apparatus :—

"The existence of an *Inferior* or *Bronchial Larynx*, in which the voice is produced, constitutes a special peculiarity of the class of Birds. It is situated in the upper part of the thoracic cavity at the extremity of the trachea, where that divides into the two bronchi. The length of the inferior larynx is mostly greatest from before backwards, and its interior forms a quadrangular cavity, which is generally divided inferiorly (at its outlet) by a *cross-bone* passing from before backwards, into two lateral halves, that receive the two openings of the bronchi, which are to be viewed as forming a double rima glottidis. The cross-bone consists of the last tracheal ring increased in size, or else of several rings which have become firm and rigid, approximated and even blended together, so as to form a firm bony drum of variable size. The commencement of the bronchial tubes is also to be regarded as forming part of the inferior laryngeal apparatus, since their first rings and the membranes which unite them must exert the greatest influence upon the production of the voice."

"In the majority of those Birds which are capable of uttering sounds membranes are found situated both exteriorly and internally to the inferior larynx. There arises from the cross-bone a thin membranous slightly elastic and easily lacerable membrane, which completes the bronchi upon their internal aspect. The extent of this membrane is greater or less in proportion to that of the segment formed by the imperfect bronchial rings; the first two or three of these are usually very slightly curved, and in the form only of a small semicircle; the membrane completing the rings is therefore largest in this situation, and fully merits its appellation of *membrana tympaniformis interna*. There is generally found a *membrana tympaniformis externa* presenting the form of a fenestroid oval membrane placed between the cross-bone or the lowermost tracheal ring and the most superior of the bronchial semicircular cartilages." P. 112.

Several modifications of the organ are described, but which our limits will not allow us to notice; we therefore pass on to the larynx of singing-birds, possessing what is called a true *muscular vocal apparatus*, and which can also be well studied in the raven or rook :—

"The trachea here consists of a short bony tympanum or drum, constituting its inferior extremity, and usually formed by the early coalescence of three rings. The tympanum is divided as usual inferiorly by a transverse or cross-bone. From the superior border of this, a membranous semilunar fold (*membrana semilunaris Savart*) rises to about a line in height, as in the Rook; its dimensions, however, are very various, and in birds of accomplished song, or such as can

learn to speak, it is more largely developed. In other Passeres, as in the Sparrow, Haw-grosbeak, &c., these membranes are of course wanting. From these observations it may be inferred that this membrane is of essential importance to the production of song or the power of uttering articulate sounds, since when it is absent or slightly developed, the voice is feeble or has but little variety of tone. The three first bronchial demi-rings exhibit also remarkable peculiarities. The first or uppermost ring is thicker in the middle than at the extremities; at the posterior end inferiorly it becomes broader, and curves in such a manner backwards and inwards, as to form the posterior and internal wall of the bronchial portion of the inferior larynx; below it passes into an acute angle, which forms the point of support of the internal lip of the glottis. The second bronchial demi-ring is more moveable than the first, especially in the direction outwards and upwards. The third demi-ring is nearly straight, and between it and the second demi-ring there is a triangular membranous fenestra, and between the first and second bronchial demi-ring an oval *membrana tympaniformis externa*. Upon its inner surface there is found a remarkable fold of the mucous membrane, consisting of tolerably thick and elastic tissue; it forms a true vocal chord, *ligamentum vocale externum*, which always forms the external lip or wall of the glottidean fissure. This membrane or fold is thrown into vibrations during the passage of the air from the lungs. Besides this the *membrana tympaniformis interna* is found as usual completing the inner side of the bronchi, and is in continuous connection with the *membrana semilunaris* of the cross-bone. A small pliant cartilage (*cartilago arytænoidea Savart*) is situated in the upper part of this membrane, is in connection with the second arch of bone, and exhibits manifold diversities." P. 115.

Acting upon this complex mechanism, there are no less than five pairs of intrinsic muscles, in addition to two external pairs connected with the trachea. "The voice of birds appears like that of the human subject to be produced by the combined vibrations of the laryngeal membranes and the tongue. The flute-like tones of the Singing-birds are doubtless accomplished by a vibration of the whole column of air while passing through the trachea."

Another interesting appendix of the respiratory organs, for such we regard it to be, is the *swimming-bladder* of the fish. The author remarks—

"Frequently as it has been compared with the lungs of the higher Vertebrata, and certainly, from its mode of development, position, and internal structure, reminding us exceedingly of these organs in the Amphibia, still the disposition of its vessels forbids our regarding the *Swimming-bladder* as an instrument of respiration, and thus we are still in doubt as to its precise functions; it occurs only in the Bony Fishes, but not in all the genera, and among the Cartilaginous in the Sturgeon alone, which forms the transition-link to the Osseous Fishes. The Swimming-bladder must however exist in connexion with definite modes of life in several Fishes, since it is frequently absent in different species of a genus, or in nearly allied genera, *e. g.*, Scomber scombrus, Polynemus paradiscus, and the genera Pleuro-nectes and Lophius.

"In ordinary cases the swimming bladder is situated beneath the spinal column, to which it is firmly attached by cellular tissue, and, covered by the kidneys, overlaps the intestinal canal. It consists of two coats; of an external, which is very tough, fibrous, and glistening, and an internal or soft vascular mucous membrane. It is invested upon its lower surface, or that facing the viscera, by peritoneum." P. 250.

That this remarkable organ is to be regarded as a rudimentary lung, cannot, we think, be reasonably doubted. The greatest obstacle to the

reception of such an opinion is, that fishes are destined to breathe by gills and not by lungs; but there are not wanting examples to prove that animals respiring essentially by bronchiæ, such as the proteus, siren, and axolotl, may still possess lungs. The above theory rests, however, on the more certain basis of embryology, which proves that all vertebrate animals, whatever may be the ultimate mode of their respiration, present in their development the types both of bronchial and pulmonary organs; so that in fact, instead of the existence of rudimentary lungs in fishes being an anomaly, the real exception would have been, if such organs had at no period of their formation existed.

Although the homology of the swimming-bladder may be thus determined, it is by no means easy to assign its use. That it does not in general act as a lung is certain; for, among other reasons which might be adduced, it will suffice to state that this bladder is often a closed sack, though at other times it has an external communication by what has been called its ductus pneumaticus. Nor is it sufficient to affirm that it is employed exclusively as a pneumatic apparatus, enabling the fish to rise or sink according as the air within is expanded or compressed by the action of the muscles attached to it, of which one or more pairs have been described. The great vascularity of the inner membrane, which can be beautifully seen by the microscope in the eel, clearly indicates some additional and important function; a position which is further supported by the fact that in many instances a peculiar *vascular gland* is interposed between the coats of the swimming bladder, presenting a very curious arrangement of blood-vessels.

Our limits will only permit us to extract the following account of the complicated muscular structure connected with the skin of birds, the representative of the panniculus carnosus of quadrupeds. "The tegumentary muscles which contract the skin are very extensively developed in the present class, as also the muscles which bristle up the feathers upon the neck and head particularly of those birds, where they arise in tufts. In the Gallinæ a peculiar tegumentary muscle supports the crop as it hangs down in the neck. The strongest tegumentary muscles occur in the Apteryx, in which several distinct layers and fasciculi may be distinguished; a provision very necessary to this bird, which scratches deep in the earth, and must therefore shake its feathers with considerable force to dislodge the dirt from them. In addition to these muscles in birds, there are strips appropriated to the feathers, which becoming detached from the tegumentary muscles, form a sheath around the quill part of each feather where it projects into the skin. They are wanting generally to the down-feathers, and are in the others easily overlooked on account of their small size in most birds. In the larger birds, however, as some of the Palmipedes, *e. g.*, the Pelican, Goose and Duck, they are very much developed, each feather receiving four, more rarely five, small muscular fasciculi, which can move the feather in all directions, so that in Sula and Anas, where about 3,000 quill-feathers are reckoned upon the body, the number of these muscles amounts to 12,000." (*L. c.*, p. 83.)

We must here conclude our notice of Professor Wagner's interesting and valuable work. But we cannot do so without offering our thanks to Mr. Tulk for the judicious selection he has made, and for the acceptable

service he has thus rendered to the student of comparative anatomy. We would further express our hope that this gentleman will receive sufficient encouragement to complete this outline of animal organization, by translating those parts of Professor Wagner's work, which treat of the invertebrate animals, and which are now being published in Germany under the superintendence of the author by two of his pupils, Dr. Heinrich Frey and Dr. Rudolph Leuckart. The part comprising the Insecta has lately reached this country. There is also one other addition, which we trust the translator may be enabled to make, and that is an atlas of plates, without which it is almost impossible to convey accurate conceptions of structure to those who, like so many of our professional brethren, have not access to museums of comparative anatomy.

De la Temperature chez les Enfans a l'etat Physiologique et Pathologique. Par le Docteur *Henri Roger*. Paris, 1844–5.

On the Temperature of Children in Health and Disease. By *Henry Roger*, M,D.

Dr. Roger has just completed an interesting series of articles in the *Archives Générales de Médecine*, upon the variations of Temperature n Children; and the conclusions at which he has arrived (based upon about a thousand thermometrical experiments) seem to us to possess sufficient novelty and importance to justify our laying a complete analysis of the Essay before our readers.

Numerous as have been the researches undertaken in respect to the animal heat of the healthy body, little has been done for the investigation of the changes of temperature in its diseased condition; and yet the subject is of great interest, for while the mean temperature of man varies scarcely a degree at the poles and the equator, even a slight attack of illness may immediately produce a great thermometrical difference. It is true we have some isolated observations upon the subject, such as those of MM. Becquerel and Breschet, and M. Bouillaud has of late years introduced the thermometer into his clinical practice. He has also laid down some general principles derived from the observation of 300 cases, but he has not followed the subject in any of its details. M. Donné has studied the modifications of animal heat produced by several diseases, as well as their relation to the pulse and respiration; M. Piorry, too, has published some curious observations, and M. Andral has deduced several general laws from the various facts collected by himself and others. What these observers have done for the adult, M. Roger proposes to effect for the child; and, for this purpose, he has devoted several months to the assiduous observation of the numerous cases the large Children's Hospitals of Paris presented to his notice.

1. *Mode of appreciating the Temperature.*

The indications furnished to the hand are too uncertain to be of avail, so that a *Thermometer* must always be employed. This should be a delicate one, having a scale sufficiently divided to admit of the 4th or 5th of a degree being distinguished. In the experiments to be adverted to, it has always been placed in the axilla, with the walls of which it can, in the child, be kept completely in contact by bringing the arm across the chest. If the examination is made in Winter, the bulb should be slightly warmed in the hand prior to its application, for if too cold it will startle the child and render him restless. With such precaution we may often pass the instrument into the axilla of young infants without even awakening them. Ordinarily the quicksilver attains its height within three minutes, but M. Roger leaves it in the axilla for five minutes, during which time he also counts the pulse and the respirations. In children, who, from their age or their indocility, may be expected to become restless, it is better to commence by noting these phenomena; and in very young infants, clothed up to the neck, the respirations are best counted by observing the dilatations of the alæ nasi, and when, in such subjects, neither the radial nor the temporal pulse can be felt, we must employ the stethoscope. The thermometer should be read off *in situ*, for, if it is as delicate as it ought to be, the quicksilver will descend at least a degree during the few seconds occupied in its removal. When it is desired to take the temperature of the mouth, we are recommended to place the thermometer under the tongue, to prevent the cooling it would undergo from the air passing through the cavity if placed on the dorsum. In tractable children and very young infants this is practicable, the latter, mistaking the bulb for the nipple, close the mouth willingly upon it, and when they open it to cry upon discovering their mistake, we must close the jaws firmly to prevent the admisssion of cold air. This is not practicable or safe in turbulent children, or such as have teeth, and in these M. R. recommends the instrument should be passed between the cheek and the closed dental arches.

After declaring that he has considered no conclusion satisfactory without verifying it several times, and denying that the temperature of the surrounding medium (this was never higher than 68° F.* or lower than 54°,) has had any influence upon the results, the author proceeds to consider—

2. *The Normal Temperature of Children.*

Very erroneous *à priori* conclusions have been formed upon this subject. Thus, some authors, observing the activity of function in the child, and especially the rapidity of its pulse and respiration, have concluded that its temperature must be much higher than that of the adult; while others, reasoning from the naked condition and feebleness of the infant, declare it must be much lower. Even experiments differ in the results they furnish. Thus, Liebig, without however indicating the experiments whence he has

* To avoid repetition of this initial, we may observe we have, throughout the article, reduced the numbers of the Centigrade scale to those of Fahrenheit's, in doing which we have found Mr. Taylor's "Thermometrical Table" a valuable aid.

deduced so high a figure, places it at 102°; while Edwards found the average temperature of ten healthy infants, from some hours to two days old, to be but 94½°. In three children, from one to two days old, M. Despretz found the average to be 95°. M. Roger believes that, if we wish to arrive at exact results, and reconcile the discrepancies of authors, we must place children in three separate categories.

A. *During Birth* the child has a temperature equal to that which it possesses some days or even some years later. The mean of two examinations, made immediately after the expulsion of the fœtus, gave 99°; and in 8 out of 11 cases the temperature was found two or three degrees higher in the child than at the axilla of the mother. The high temperature of the child during birth may be explained by that of the uterus which it has just quitted, although some observers have certainly placed this too high. Granville states it to be 106° in normal labour and 104° after delivery. M. Gavarret found the thermometer to be at 104° during parturition in the sheep. In three or four minutes *after delivery*, the child's temperature sinks to 97° and then to 95°. Such diminution is probably due to the temporary exposure of the damp surface of the child to the air, and the refrigeration would probably equal that of young animals removed from their parents, if the infant was deprived of the protective care its helpless condition calls for. It is not permanent, the thermometer mounting up again after the next day, so that the mean temperature of five children one day old was 98½°. Although, therefore, in passing into a medium 30 or 40 degrees colder than that which it has left, the child easily parts with heat, its loss is only temporary, and Edwards has stated the medium temperature of new-born children too low (94½.) Twenty children, in good health, and aged from one minute to two days, furnished M. Roger with a mean of 98°. In nine of these experiments, in children from 1 to 30 minutes old, the temperature seemed to be independent of the circulation; for the maximum (130) and the minimum (96) of pulsations correspond with the same degree of temperature (96°.) Nor is there a greater correspondence observed between the maxima of temperature and of the respirations. Nevertheless, the same child furnished the three minima, viz., pulse 65; resp. 22, and temp. 95½°.

B. *New-born Children.*—On analyzing the temperatures of 33 children, aged from 1 to 7 days, 98½ was found to be the most frequent figure (14 times,) 8 children offering a lower and 11 a higher temperature. The mean, however, is 98½, the maximum, observed only once, being 102°, and the minimum, observed also but once, 96½°. The rapidity of the *respirations* seems to have borne but little relation to the temp. which was the same in those in which they were less, and those in which they were more than 36 per minute. The mean number was 39, the minimum 24, and the maximum 86. This last high number occurred in a child 2 days old, who was lying quite tranquil with a pulse only at 84, and a temp. of 98°. The relations of the *pulse* and the temp. seem to have been more constant. The maximum pulse was 140, the minimum 70, and the mean 102. Fifteen children who attained the mean, or were below it, had a mean temp. only of 98°, while in 18, who exceeded the mean, the temp.

was 99°. *Strong* infants gave a mean of 99½, and *feeble* ones but 98. The mean temperature of 13 boys exceeded that of 16 girls by about a degree. It has been usually said that the temperature is lower during *sleep*, but in 14 infants examined, Mr. Roger found it about half a degree higher.

c. *Temperature in Early and Advanced Childhood.*—The mean temp. of 25 children, aged from 4 m. to 14 ys. was found to be 99°; being slightly lower for those who were less, and slightly higher for those who were more than 6 years old. The *pulse* in the former group averaged 102, as in new-born children, and in the latter group but 77—showing that the calorific function cannot exclusively depend upon the circulation, inasmuch as with a slower pulse we here have a higher temp. The *respirations* present a mean of only 30, instead of 39, in the new-born child; both these and the pulse are liable to fewer oscillations, and are separated by less considerable extremes than at an earlier age. The minimum pulse of the 25 children was 64, and the max. 120, a difference of 50 instead of 70. The minimum of the respirations was 20 and the max. 44, a difference of 24 instead of 42. Rapid *exercise* sometimes raised the temp. a degree, but not in other cases, although the number of the p. and resp. were of course augmented. Mr. Roger's experiments do not confirm the opinion that the temp. increases after a repast.

3. *The Comparative Temperature of different parts of the Body.*

As the result of experiments made upon 15 children, of from 8 to 13 ys. of age, the various parts of the body are thus ranged according to the greater height of their temperature: the axilla, the abdomen, the mouth, bend of the arm, the hands, and the feet. The axilla and abdomen, in some cases, gave the same temp., but, as in disease, that of the latter is often found lower, while the thermometer is more conveniently applied to the former. In 5 out of 6 experiments the temp. of the mouth was lower than that of the axilla from ½ to 7°. The temp. was usually 2° lower at the bend of the arm, that of the hands from 2° to 11° lower, and that of the soles of the feet from 10° to 13° lower. These data prove there is no equilibrium maintained over all parts of the body, and that the animal heat diminishes in proportion as the centre is receded from. It is highly important to bear in mind such normal differences, when considering the results observed during the presence of disease.

4. *Temperature in the Diseases of Children.*

Although the physiological actions of the economy do not influence the temp. to any considerable extent, either in the adult or child, it is very different as regards disease. Andral, speaking of adults, says that the limits of the variations produced by pathological causes extend over 13°, viz., from 95° to 107½°. In childhood, the limits are far more extensive, as they may be found as low as 72° and as high as 109°, giving an oscillation of 37°; but, like the diseases themselves, exhibiting variations not found at other periods of life.

A. *Diseases in which the Temperature is increased.*—1. *Fever.* Whatever

may be the form, type, duration, cause of, or concomitant alterations in fever, an increase of temperature is, as Andral remarks, its characteristic and fundamental phenomenon. He states that, of 350 cases of primary or symptomatic fever, the thermometer stood at 100½°, in 64; at 102° in 150; at 104° in 116; at 106° in 18; and at 107½° in a case of acute farcy. To proceed to the varieties of febrile action.

A. *Ephemeral Fever.*—This is seen oftener in children than in adults, and more frequently in private than in hospital practice. Two cases only here are noted, the temperature of the one being 105°, and of the other 101°.

B. *Intermittent Fever.*—M. Gavarret has shown, in a memoir published in the fourth volume of "*L'Experience*," that there is an augmentation of temperature not only in the hot but in the cold stage of this disease. In six persons, from 18 to 36 years old, in whom he had the opportunity of applying the thermometer, he found the temperature rose from 97½ to 100½°, and in four trials as high as 104°. In five experiments made during the hot stage he found the thermometer stood only 2° higher than in the cold one. Some explanation is, however, required before attributing the sensation of cold to a mere perversion of sensibility. It is in fact due to the unequal distribution of heat; for, although the temperature of the central organs, ascertained at the axilla, is higher, that at the extreme parts of the body, as the nose, feet, hands, &c., is lower than it should be, as M. Gavarret has subsequently stated. It is in fact but an exaggeration of the normal distribution of caloric, and a partial refrigeration at the extremities may occur in ague, just as we see it normally in Winter, and pathologically in diseases of the heart. The children brought to the *Hôpital des Enfans* are by no means favorable subjects. A great number of these have been long left at nurse in the departments where intermittent is endemic, until they have become cachectic, and their spleens enormously enlarged. The intermittent frequently becomes converted into continued fever, or, at all events, its paroxysms are rendered less certain and regular. For these, and other reasons, it is rare to have the opportunity of observing the temperature during the cold stage in the child. From the examination of 15 cases, it was found that there was a slight diminution of heat in the interval of the paroxysm, or some time after the hot stage had ceased. During the hot stage the temperature was found to rise not quite so high, by about two degrees, as in the adult. In five cases, in which they were noted, the pulse and respiration were always found accelerated during the hot stage, and slower during the cold one.

C. *Typhoid Fever.*—This disease is that of all the affections of children which furnishes the most intense and abiding heat, and that which best proves that man must possess, within himself, a source of heat, independently of the circulation and respiration. The trials, 93 in number, were made upon 23 boys, mostly between 9 and 12 years of age; of these, 14 attained the high temperature of 104°—the maximum being 106°. Leaving out some very slight cases, we have 16, the mean of whose united temp. was 104½°: and even when the slight cases were added, the temp-

was still 103½°. The persistence of the high temperature is also remarkable. Thus, in one case, the therm. indicated 104° to the 8th day, 102° to the 11th, and 101° to the 28th day. In another case the therm. was at 104½° to the 10th day, and 6 days after still at 104°. In another it was at 105° on the 11th of June, and at 103° on the 22nd. As a general rule the temperature was found highest in the most severe cases, varying from 104° to 105°; but in some slight ones it was also very high, and indeed the max. temp. 106° was observed on the 16th day of a simple typhoid, the pulse being only 92, and the cure completed in less than a month. In typhoid fever the temp. is increased from the very beginning; for in four children it was at 105° to the 5th day, at 106° on the 6th day, and at 104° on the 7th and 8th days. This early elevation of temp. is usually proportionate to the suddenness with which the disease has appeared: and, in some instances, such increase has been the first phenomenon announcing the existence of typhoid fever—it being higher than other existing symptoms explained. The temp. usually increases or decreases as the disease becomes more or less severe, and it will even vary with the alternations of its progress. Thus, in one case, to the 29th July, the disease was only indicated by the temp. 101°; on the 2d August, it became more evident, and the temp. rose to 104°; the condition of the patient improving, the therm. descended to 103½°; and by the 9th Aug. stood at 102½°. In the *adynamic* form, the temp. may not be high, although danger may be present—the calorification seeming to participate in the general feebleness of the system. A child, on the 15th day of a fever, which proved fatal on the 18th, gave only a temp. of 99°, and never exceeded 101½°. In another case the therm. was at 104° to the 8th day, after which, adynamic symptoms becoming marked, it sank (together with the pulse and respirations) to 102°, then to 101°, and just prior to death, to 98½°.

The numbers of the *pulse* are not usually in harmony with those of the temperature, and there is *no other disease of childhood in which the great elevation of temperature contrasts thus with so slight an acceleration of pulse.* Thus the high temp. 104°, 105° and 105½°, have been observed in cases wherein the pulse was but 108, 106, or 96. In one case 101° corresponded with only 88, and in a child which presented the high temp. of 106°, the pulse only reached 92, its normal number at that age being 102. If we add together the number of the pulse, and the degrees of heat, in nine cases of severe typhoid, we find the high mean temp. 104½°, corresponding to the low mean pulse 115; and, taking all cases together, the mean 103½° corresponding also with the mean pulse of 115. So also the *respiration* is not markedly accelerated; since the mean was but 37°, the normal number being 30°. The relation of the respiration and temperature is also far from being invariable. Thus, the max. respiration (60°) corresponded only with 102° or 103°; while the max. of heat (105½° and 106°) corresponded only with 32 and 36 resp. So, too, in observing cases for several days, we sometimes find the respiration remains the same, while the therm. rises or falls from ½ to 2°, and sometimes becomes accelerated while the temp. lowers, or, what is rarer, becomes slower while that rises. Nevertheless, in most cases, there is a relationship between the two phenomena, and their simultaneous decrease is striking during the decline of the disease.

Practical Applications.—The above facts are valuable in aid of the *diagnosis* of the diseases of children, sometimes so difficult. Thus, as there is no other disease having so high a temperature with a pulse so little accelerated, if we observe a case in which with the pulse at about 100 the therm. indicates 104° or 106° we may almost certainly pronounce it one of typhoid fever. In some cases a very high temp. should lead us to expect typhoid, although no other symptom be present, while, in others, a moderately high temperature is a corroborative sign. In distinguishing typhoid from *enteritis*, which is not so easy as some imagine, as also ataxic typhoid from *meningitis*, the recollection of the higher temperature in typhoid than in either of these two diseases, especially the former, is of great service. As to the *therapeutical* applications, we see from the enormous and long-continued generation of caloric in typhoid, the explanation of the great utility of the employment of water, both externally and internally, in the form of tepid baths, cold applications, lavements, &c. "How many times, in the wards of MM. Guersant, Rayer, and Recamier, have I had the opportunity of observing the happy effects of the repeated administration of tepid baths and cold drinks in typhoid fever. In more than one case an unhoped-for cure has followed the use of cold irrigations."

D. *Variola and Varioloid.*—The trials made in 9 cases of variola furnished the maximum of 106°, the minimum 99° and mean 101½°. The mean, however, undergoes variations, according to the stage of eruption, viz., 1st day 106°; 3rd 99°; 5th 102°; 6th 101½°; 7th 105°; 8th 101°; 9th 102½; shewing that the temp. is at its max. at the commencement of the eruption, sinking on the following days until the 5th, when it rises again, this being the period of the suppurative fever. The intensity of the eruption does not influence the temp. to the extent that might be expected; thus the mean of three confluent cases was 101½°, and of 5 discrete and varioloid 101°. The mean here stated is somewhat less than that given by Andral (102°) from his observations on 15 adults. This may arise from the fact of 3 out of the 12 children observed being examples only of varioloid. Although the maxima of the respiration and pulse do not always correspond (the pulse of the child who had a temp. of 106° was but 132, while in the child who had the max. pulse 152, the temp. was only 102°,) yet in all the 5 cases in which the temp. was highest, the pulse was rapid (mean 135,) and in all those, with one exception, in which the pulse was rapid the temp. was high. The correspondence prevails more strictly still as regards the minima. The relation of the *respiration* was almost always constant in the maxima, but frequently not so in the minima.

E. *Scarlatina.*—Currie has noted the temp. 108°, 109°, and 110°, but M. Roger believes some error in regard to these numbers. He found, in experimenting on 7 children (as Andral had also noted in 7 adults,) that the maximum was 105½, the minimum 100½, and the mean 103°. As in small pox, the high temp. is remarkably persistent throughout the course of the disease. The mean of 14 experiments, made at different periods, was 102½, *i. e.*, nearly as high as at the commencement. The increase is proportionate to the intensity of the eruption, the gravity of the symptoms, and the complications of the disease. Those who died furnished a

mean of 104°; those who recovered of 101½°. There is, in general, a want of accord between the degree of temp. and the *pulse*. In two cases in which the pulse was 164, the temp. was but 103°, while the max. temp. 105½ corresponded with a pulse of 140. The minimum pulse 108 corresponded with the temp. 103¼, and the minimum temp. with a pulse of 125. In general, the pulse was much accelerated, giving a mean of 135. The relation of the *respiration* is more exact, but not constant. The maximum respiration (50) corresponded with the highest temp., but the minimum resp. corresponded with the high temp. 103½. The mean was 37.

F. *Measles.*—From experiments made on 18 patients, the mean was found to be less than in the two other exanthemata, viz., 101°; the maximum being 104° and the minimum 99½. In 11 Adults Andral found the temp. was nine times between 100½ and 102, and twice 104°. The duration of the high temp. is not so long as in the other febrile affections. In all, except two cases, (in which bronchitis and pneumonia were present,) it gradually declined: thus the mean on the 1st day was 102¼; on the 2nd 101¼°; on the 3rd, 101°; on the 4th, 99½; on the 5th, 98½; and the mean of 30 experiments, made at different parts of the course of the disease, was only 100°. The *pulse* is more absolutely increased than the temp.; and in the majority of cases, there is an exact correspondence with their relative increase. The diminution of the pulse and temp. is also simultaneous. The relation of the *respirations* is neither so frequent nor so exact. The child who had the max. of respirations (64) furnished only the temp. 102°, while in another with a temp. of 104° the respirations were only 32. Nevertheless, in the majority of cases, the resp. was most accelerated in those cases in which the temp. was highest.

G. *Erysipelas.*—Only two cases were noted. In one, æt. 6, the therm. stood at 103½, and in the other (æt. 13) at 104½°.

2. *Affections of the Heart.*—One case of pericarditis and one of hypertrophy, were the only ones met with, and in neither was the temp. much raised, varying from 98½ to 100½. Andral has also shown the slight elevation which took place in the adult, viz., 98½ at the axilla, while applied to the hands the therm. stood only at 86°, and to the feet at 80½. In one case, M. Donné found the temp. to be but 93°, and in 11 others, it oscillated between 98½ and 100½°.

3. *Affections of the Digestive Organs.*—A. *Stomatitis.*—Although the normal temp. of the mouth is lower than that of the axilla, it is in this affection increased from ½ to 1°. Of four cases, the max. was 101½°, the mean being in the mouth 100½, and in the axilla 99½.

B. *Muguet.*—The maximum of 7 cases gave 102°, the minimum 98½, the mean in the axilla being 99½.

C. *Enteritis* gives rise only to a slight increase of heat; for of 8 boys, from 3 to 13 years old, upon whom 15 experiments were performed, the max. obtained was only 102½, the mean being 100½. The temperature is

usually higher in proportion to the acuteness of the symptoms. The minima of the pulse and respirations are oftener in accordance with those of the temperature than the maxima.

The thermometer, as already observed, may be made very useful in distinguishing *typhoid fever* from *enteritis* at an early stage. Compare the high temp. of typhoid 104° with the moderate one of enteritis (100½)—the pulse being of the same velocity in both. In the first, too, the great heat once produced, may continue for weeks, while in the other it disappears in a few days. In many of these difficult cases of *typhoid enteritis*, for the detection of which Rilliet and Barthez declare our means are insufficient, the thermometer will often decide our doubts. If the temp. of 10 ½ or 100° is maintained for some days, and never rises beyond 102°, we have to do with an enteritis; while, if the therm. rises to 106° or even 107°, the disease is undoubtedly typhoid fever.

D. *Dysentery.*—Three fatal cases of this disease were observed, in which the temp. varied from 100½ to 101°. The thermometer, applied to the abdomen, opposite to where the worst lesions were found after death, denoted from ½ to 1½° lower temp. than in the axilla. The temperature usually continued the same throughout the whole course of the disease: thus, in one case it was 101° on the 26th Sept. and continued the same 16 days after. The same temperature was observed notwithstanding that the symptoms and lesions were very different; and in general there was no connection between it and the frequency of pulse and respiration.

E. *Acute Peritonitis.*—The mean of nine experiments made in three cases was 103°, the therm. standing nearly at the same degree for 5 or even 10 days. The relation to the pulse and respiration existed in one case and not in another.

4. *The Nervous System.*—A. *Meningitis.*—48 trials were made upon 6 cases of cerebral meningitis, and 3 of cerebro-spinal, (from 10 months to 14 years of age,) and comparing them with other affections, we are struck by the *great inconstancy of the results.* Thus, in typhoid fever, pneumonia, &c., in the great majority of cases the temp. is always high, as it is, but less so in enteritis, measles, bronchitis, &c.; but in *meningitis* the greatest varieties are met with. The elevation may be moderate in some cases, in others higher than in any other disease whatever, (109°,) and in others, again, lower than in any other acute inflammation (95°.) By an examination of the table given, it is found that not one of the maxima exactly resembles another, half a degree at least separating them. The increase of temp, however, oscillates between 103° and 101°, the mean of the maxima of the nine children 102°, and of 48 trials 100½°. In most diseases attended by increase of temp., this is usually found at the commencement of the disease, and sometimes at the middle, but in meningitis it is oftenest observed towards the end; so that, comparing the trials made at an early and at a late stage of the affection, a difference of 7° is observed. The highest temp. (109°) was noted only an hour before death, and an hour after death the therm. still stood at 102°. Sometimes the rise is sudden and inexplicable; and thus in one case it was 99° on one

day and 109° the next, without any additional bad symptoms. Neither the age of the patient, the period, seat, or gravity of the disease, or inflammatory alterations, explain the reason of these differences, as they have been met with under exactly similar circumstances in these respects. The more rapid the *progress* of the disease the higher was the temp. observed; so that in three cases, whose mean duration was 4 days, the temp. was 105½, but in others, giving a mean duration of 21 days, it was but 100½. The relations of the *pulse* do not explain these irregularities; for, although in no other acute phlegmasia do the temp. and pulse descend so low, the following table exhibits a want of correspondence in such descent.

"Maximum	Temperature	109°	Corresponding	Pulse	160
"	Pulse	164	"	Temp.	106°
Minimum	Temperature	95°	"	Pulse	120
"	Pulse	48	"	Temp.	98½°"

Thus, although the low number of pulse ordinarily corresponds with a low temperature, reciprocity does not prevail, since we find the great diminution 95° corresponding with a pulse of 120. The correspondence of the *respiration* is better marked; and the pulse, resp. and temp. are more frequently in accordance than not so.

For the purposes of *diagnosis* it is important to remark, that a considerable abatement of temp. may take place at the middle period of this affection, *meningitis being the only inflammatory or febrile disease in which this is the case.* Thus, in one case, the therm. descended from 98½ to 97½, and in another to 96°. It is familiarly known that the *pulse* may undergo similar changes, and that, rapid at the commencement and termination of the disease, it may become slower in the middle period. In one case it fell from 120 to 52, while in another it rose, after being 4 days at 48 and 58, to 140. So the *respirations* have fallen to 14 or even 12.

"Thus, if in the course of a disease presenting cerebral symptoms, the therm. indicates 95° or 97° after having stood at a higher point some days before, we may almost positively declare a meningitis is present, and our certainty will be the greater if there is a coincident abating of the pulse and respiration. So that we may state that a diminution of heat intermediate between two periods of augmentation is a pathognomic sign of meningitis." "In other cases we may distinguish the meningitis from typhoid fever, inasmuch as the mean is 102° for the former and 104½ for the latter: so that, in doubtful cases, in which cerebral symptoms predominate, if the temp. surpasses 106° typhoid may be presumed to exist, while, if it is below 102°, the disease is probably meningitis. But here we cannot speak with the same certainty as in other diseases."

B. *Diseases of the Brain.*—In four cases of different descriptions of disease of the brain the increase of temp. was but slight, the maxima being 102 and 103°, and the minima 100 and 101°. The mean of the four cases, although two had a coincident pneumonia, was 101½, and of the 14 experiments made upon them 99°. The *pulse*, on the contrary, was rapid, giving so high a mean as 143, and the *respiration* was accelerated, but neither in proportion to the temp. In affections of the substance of the brain there is not the sudden intermediate lowering of temp. pulse and respirations observed in meningitis.

5. *Respiratory Organs.*—A. *Croup.* From 20 trials made in three cases, it appears that there is no great increase of heat (mean 100½,) and by no means to the extent to have been anticipated from the mean rapidity of pulse (152) and respirations (51.)

B. *Bronchitis*, when unconnected with pneumonia, gives rise to a much less high temp. than that disease: only once out of 12 cases and 21 trials, did it reach 102°. Taking only the severe cases we have a mean of 101°.

"The distinction between *capillary bronchitis* and *pneumonia* is often made with great difficulty, and if we find a child with fever, cough, dyspnœa, and subcrepitant *râle* on both sides of the chest, we may have some difficulty in offering an exact opinion. The thermometer may aid us. If it denote a temp. of 104° or 106° there is almost certainly pneumonia, while if this do not exceed 101° there is most probably but bronchitis. The importance of this observation was shewn in the first case of the table. The child had a pulse of 152 (afterwards 192) and 58 respirations, while auscultation revealed small crepitation over the whole chest. Although there was no thoracic dulness, as this sign is wanting at the commencement of diffused lobular pneumonia, I concluded from the intensity of the symptoms that this disease was present. But the autopsy, by exhibiting the integrity of the pulmonary tissue, and the changes in the capillary bronchi, proved to me that I should have avoided this error in diagnosis had I trusted to the thermometer, which only indicated 100¼."

The pulse and respirations are always very rapid (the mean of 3 cases gave r. 64, p. 132, although the temp. was but 99) compared with the moderate increase of heat; but the correspondence between these is not always observed.

C. *Pleurisy.*—The temp. in acute cases of from 4 to 6 days' duration was found to be 102°; and in chronic cases, of from 7 days' to several weeks' duration, but 99°. Andral gives the mean in adults at 102°, but Donné, from four trials, places it at but 100½. The relations of the *pulse* and *respiration* are pretty constant.

D. *Pneumonia.*—Of all the diseases of the respiratory organs this furnishes the highest temperature. In ⅔ of 17 cases the therm. surpassed 104°, and the mean of the whole was also 104°, all but a fraction. As in typhoid, the heat here is remarkable for its persistence; so that the 47 trials, made in various parts of its course, still furnish a mean of 102½. It is, however, at the onset and middle portion of the disease that the therm. is very high, becoming depressed towards the end, even when the disease is to terminate fatally. It stood at 106° on the 27th March, and at 101° on the 31st. This descent is not constant or regular, and does not even in the end amount to much, inasmuch as the mean of three trials on the day of death gave 102½. It is constant and regular, however, when the case is about to terminate favourably. The seat, form, gravity, &c., of the disease do not produce proportionate elevations of temperature, and uncomplicated pneumonia is attended by a higher temp. than that which possesses complications, although these may be such as are usually attended by increased heat. The agreement of the thermometrical results, as observed in the child and in the adult, is very surprising, when we consider the difference in the nature and progress of the disease at the different

periods of life. In 73 cases, Andral found the temp, twice at 100½; 28 times at 102; 36 times at 104; and 7 times at 106°. His maximum and minimum were identical with those observed by Dr. Roger in children, and his mean nearly so (103½.)

Of all the phlegmasiæ, pneumonia is that which is attended with the highest temp. and proportionate exaltation of pulse and respiration. In nearly one-half the cases the *pulse* reached 140 or upwards, and in three 160—the whole mean being 133. In 12 trials out of the 47, the *respirations* amounted to 60 and upwards, the maxima being 84, 88 and 96.

"To judge of the relative exaltation of these functions we may state the means, viz., Temp. 104°, Pulse 133, Resp. 52. These amounts are surpassed by those of no other disease, and in no other is the agreement of the three so well marked; the pulse and resp. rising and falling with the therm. Such agreement it is important to notice in reference to the differential *diagnosis* of *lobular pneumonia* and *bronchitis*. At an early period, the most experienced practitioner may confound these, but there is a characteristic which distinguishes them. A temp. of 104° is a common one in pneumonia, while it is never met with in the bronchitis of infants or adults, 102° being the maximum in that disease as it is the minimum in pneumonia. Thus, if in a child presenting the symptoms of either disease we find the therm. to stand at 100°, we pronounce it a bronchitis, while, if it mounts up to 104°, the parenchyma is involved. It has more than once happened to us to recognize a pneumonia by observation only of the dyspnœa and increased temperature."

Before proceeding to the other divisions of the subject, it may be of advantage to exhibit a tabular view of the *mean temperatures* of the principal diseases already noticed.

Typhoid Fever	104½°	Meningitis	102°
Variola	101½	Bronchitis	100
Scarlatina	103	—— severe	101
Rubeola	101	Chronic Pleuritis	99
Enteritis	100½	Acute Pleuritis	102
Peritonitis	103	Pneumonia	104

B. *Diseases in which the Temperature is Stationary.*—These affections, consisting of the Neuroses and certain Diatheses or Cachexiæ, may be separated into two categories, viz.: those in which the temp. may, under certain circumstances, be *secondarily* increased, as Pertussis and Tubercle, and those in which it remains *invariable*, unless complications bearing no relation to the primary disease occur, as Chorea, Rickets, &c.

1. *Tubercle.*—(Phthisis Pulmonalis and Peritoneal Tubercles.) If tubercles give rise to an increased degree of heat it is only *secondarily*, from the irritation they excite in the tissues in which they are deposited. When this is not present, or has become chronic, the therm. hardly rises above the normal level. The maximum in 12 cases, in which the course of the disease was slow, was 100°. M. Andral also has observed the temp. to be normal in adults when no fever is present. Of 21 patients, 2 were without fever, and the therm. stood at 98½, while in the 19 others, it stood at 100½ three times, at 102° four times, and at 104 three times—giving a mean of 101°. Of 42 experiments by M. Donné, the max. was 103, the min. 96, and the mean 100°. M. Donné found a relation between the *pulse*

and temp. only in 16 out of 42 cases, the temp. being sometimes found low with a rapid pulse, and the contrary. In the children the relation held good in ⅔ of the cases, and generally as regards the respiration.

In *Cerebral Tubercle*, unless there is attendant inflammation, the temp. is little raised above the normal: 13 trials made in 6 cases furnishing a max. of 100¼, a min. of 98, and a mean of 99°.

2. *Hooping-cough.*—Usually there is no variation of temp. unless bronchitis or pneumonia is present. Thus, 7 cases gave a mean of 101° only, although bronchitis and fever were intense in three, and another died with dilated bronchi. The heat, though moderate, was persistent, for the mean of 16 trials made at different periods was 100¼. The *pulse* (mean 128) and respiration (40) were generally accelerated, but their relation to the temp. as often absent as present.

3. *Chorea.*—In 5 cases (æt. from 8 to 13) the max. temp. was 99, the minim. 97¼, and the mean 98°. This does not confirm Becquerel and Breschet's statement of the increase of temp. during muscular contraction, and indeed, in a case in which the contractions were constant, it was less than 98½. The pulse and respiration were usually within physiological limits.

4. *Various Forms of Dropsy.*—When dropsy is acute and accompanied with fever, there is an increased temp.; but when it is apyretic the mercury is not influenced, or even slightly depressed. This observation applies to dropsy, whether consecutive to scarlatina or connected with anemia.

5. *Rickets.*—In pale, ill-developed children, whose contracted chest gives rise to imperfect hæmatosis, we naturally expect to find a diminished temp., yet in the cases examined this has not proved to exist, the therm. ranging from 97¼ to 100°. If phlegmasiæ attack these subjects, however, the temp. seldom reaches the same height as in healthy children.

6. *Paralysis.*—In the physiological condition we find a difference of 13° between the axilla and the sole of the foot, but in a paralytic boy Dr. Roger found the difference to extend to 31° (*i. e.*, 68 and 99°;) but in other instances he has been as unsuccessful as Andral in detecting diminutions of temp. in the paralyzed part. However it may be in some cases as regards *partial* modification of temp. there is no *general* loss; for in seven experiments the mercury neither rose nor fell at the axilla.

c. *Diseases in which the Temperature is diminished.*—When the child has passed through the first few hours after birth, a period at which its calorific powers are at a minimum, no physiological condition gives rise to a diminution of temperature; but under the influence of disease the thermometer may sink many more degrees than it rises in those diseases which are attended with an increase of temperature. The number of diseases, how-

ever, in which there is *diminution* of temp. are very few in number: viz., one in which this is *partial*, gangrene of the mouth; and two in which it is *general*—cholera and the œdema of new-born children.

1. *Gangrene of the Mouth.*—The diminution of temp. which follows the application of the therm. to the eschar is far less than that which is present in sphacelus of the limbs in the adult. Dr. Roger observed the case of a man æt. 30, suffering from gangrene of the foot, and found the temp. of the part (70½°) to be less than that of the axilla (106°) by 30°, and only 6° more than that of the circumambient air (64½°;) the pulse being 112 and the resp. 30. Eight days after, when the condition of the patient had improved, the temp. had risen to 74°. But in a child with gangrenous stomatitis the temp. was 81, or 19° above the external air (62°,) and only 9° less than the healthy cheek (90°.) At the commencement of the affection, when the gangrene is circumscribed, and the eschar thin and not visible externally, the temp. is even raised a little above the normal mean. So, too, the temperature of the mouth, which is normally several degrees less than that of the axilla, was found, in consequence of the surrounding excitement, to be identical with it in three cases, and 1° above it in another. The general temp. is also raised, the pyrexia which precedes the gangrene, not being extinguished or diminished in consequence of the establishment of this morbid process. Thus its mean in 7 cases was 102°, the maximum of 104° being once attained. This augmented temp. too, is very persistent, for the mean of 14 trials at various periods gave 100½. The relation of the *pulse*, but especially of the *respiration*, with the general temp. is usually maintained.

2. *Cholera.*—There were but two cases of *sporadic cholera* observed at the *Hôpital*. In one, the therm. at the axilla gave 99°, although the upper extremities and the face were cold to the hand. In the other, the temp. was 97½; but at the bend of the elbow, which is usually but 2° lower than at the axilla, the therm. stood at 90°. These cases do not prove that there is any general cooling in cholera, but rather that it is partial. Yet this result is sufficient to distinguish cholera from other grave conditions, (as cold stage of intermittent, peritonitis from perforation,) in which, although the surface may be as cold, there is augmented heat at the axilla, and which are characterised not by any diminution of temperature, but by its unequal distribution.

Dr. Rogers is not aware that any thermometrical experiments were made during the prevalence of the cholera at Paris in 1832; but does not doubt, from the analogy so many of the symptoms present with those of œdema of new-born children, that a general diminution of temperature would have been found. Experiments made in Germany, indeed, confirm this opinion. Caspar of Berlin found the temperature in severe cases to be but 79°. Czermak of Vienna found the maximum of refrigeration at the feet to be 64°, at the tongue 66°—the temperature of the blood oscillating between 77 and 91°. Although these experiments are but imperfectly detailed, and may be to some extent inaccurate, they are sufficient to warrant the conclusions of their reporters, MM. Gerardin and Gaimard, that there is no other disease in which the temperature descends as in the Indian Cholera.

3. *Œdema of New-born Children.*

This affection, known also under the names of *Induration* of the *Cellular Tissue*, *Scleremis*, the *Skin-bound Disease*, &c., is attended by a *general* diminution of the temperature; and the thermometer, placed in the situation where heat is usually best preserved, descends many degrees, so as to indicate a lower temperature than that which is found even in children who have been dead for 8, 12, or even 15 hours. M. Roger bases his elaborate description of this singular disease (which is infinitely more common in France than in this country) upon 100 trials made upon 29 cases; and, in all these, the thermometer left in the axilla for five minutes has, *without exception*, indicated a lower temperature than the normal one (98½) of children from 1 to 7 days old. In 19 of the cases the temperature was lower than 91½°, and in 7, lower than 79°—the mean of 52 trials giving 88°, *i. e.*, more than 10° less than the normal mean. In extreme cases the mercury sank to 77, to 74, to 72, and even to 71°, or 27° below the ordinary temperature. The cooling is also remarkable from its persistence, in spite of contrary influences, nothing being able to oppose it, not even the presence of phlegmasiæ, which otherwise augment the temperature. In more than half the cases there is developed a consecutive change in the pulmonary tissue, described by the best writers as *pneumonia*; but as the mean temp. of that disease is 104°, how is it that, in scleremis, whether one or both lungs are inflamed, the thermometer nevertheless continues to descend? "A singular pneumonia, indeed, in which the thermometer falls to 72°, instead of rising to 106°, in which the pulse is at 60, and the respiration as 14. Such a contrast induces us to declare it rather to be the congestion from œdema, which also affects other organs, as the alimentary canal, brain, and liver, than the hepatization of pneumonia."

The low temperature exists from the beginning, and is often the first phenomenon remarked. Thus, in a case of a child five days old, apparently in perfect health, except that a slight œdema of the hands and ankles had been observed for a few hours, the temperature was found at 90°, but numerous trials have failed to prove whether the œdema and low temperature are simultaneous, or that the one precedes the other. The degree of diminution is proportionate to that of the induration, and increases from day to day; so that, when we find the thermometer sinking, a speedy death may be pronounced as certain, while its stationary, and still more rising, conditions, hold out hopes of recovery.

When we consider that a diminution of 3° or 4° is an exceptional phenomenon in health or disease, we cannot but wonder that life should be supported so long under the loss of so many degrees. Most of the children, nevertheless, although usually the delicate and premature are those attacked, continue to exist for 4 or 6 days, even 8, 10, or 13 days—the temperature of these last never however being so very low. What is the lowest temperature the child may arrive at and recover? In one of the two cures recorded by M. R. it was 90°, and in the other 91°. The system long resists even the greatest diminutions; and thus several children lived from 8 to 12 hours, having a temp. of 74 or 75°, and the one who attained the lowest limit (72°) lasted for almost a day afterwards.

It is a fact, showing that the laws of temperature are very similar in

all warm-blooded animals, that these low figures in indurated children are not very far removed from those observed by Edwards, in his experiments upon mammiferæ and birds. New-born animals, isolated from their parents for an hour or two, in an atmosphere of from 50 to 68°, rapidly lost their heat, the therm. often descending to 64°, the minimum being 57°, and once 55°. Chossat, examining the temperature of animals dying from inanition, found the mean to be 75°, and the minimum 64°.

In no other disease does the temperature correspond more exactly with the pulse and respiration. The *pulse* exceeded 100 only in 15 out of 40 trials, and 80 twelve times. It was less than 80 thirteen times, and in two as low as 60. The few times it exceeded the physiological mean (102) the œdema was very slight, or some intercurrent phlegmasia occurred. The *respirations*, too, only exceeded the normal mean 13 times in 39 cases: 26 times they were less, and in six instances fell as low as 20, 16, or even 14.

"The *nature* of this œdema has given rise to many hypotheses. According to Underwood, it is a spasm of the skin, dependent upon intestinal irritation. M. Denis regards it as an entero-cellular inflammation; Baron, as symptomatic of some obstacle to the circulation of the blood in the lungs or great vessels. According to Hulme, Dugès, and Irocon, it is a peripneumonia. Others look upon it as proceeding from an original defect, whether in the shape of permanent flaccidity of the lungs or of a non-obliteration of the fœtal apertures. Uzembezius attributes the œdema to a thickening or stasis of the blood; Auvity, to a coagulation and congelation of the fatty juices. Lastly, Valleix, Paletta, and others, lay great stress, among the causes, upon the congenital debility and the action of cold. In reference to these two important points, *congenital debility* and *external cold*, it is to be observed that, almost all indurated infants are premature, and that, at the *Hôpital des Enfans*, the disease is as rare in Summer as it is frequent in Winter. Children born before their natural time have a lower temperature than those at full time, and the newly-born infant has a great tendency to cool, while Currie has shown that the temperature may be lowered many degrees by the external application of cold. Is it the thermometrical sinking which produces the simultaneous depression of the circulation, respiration, and power of motion, or are these merely coincidently affected? The experiments of Chossat show that, in animals suffering from inanition, the various functions are depressed as the animal becomes cold, and are revived under the influence of the application of artificial warmth. The lethargic condition of hybernating animals, and many actual experiments upon indurated children, also lead to the conclusion that a *diminution of temperature* is the *primary* phenomenon. However this may be, it certainly is the predominant and essential one: for not only is it present when the pulse and respiration are slow, but also when these are normal, or even in excess. Thus, in one case, the pulse was 124, although the thermometer was at 91°. In another, the temp. being 91°, the respirations were 50; and in a third case, the resp. were 32, although the temp. was but 82°. * * * Although the lesion of caloricity may be stated as the essential condition, we are unable to trace the connection of this with the infiltration of the cellular tissue; so that we are, in fact, but shifting the difficulty of the explanation, as the sinking of the calorific power depends upon some other functional or organic change as its cause, whose nature we cannot ascertain as long as we continue so ignorant of the sources of animal heat."

In *treating* this disease, its effects, therefore, can only be attacked. We should at once seek to dissipate the forming œdema, and restore heat to the periphery, by exciting frictions, and the direct application of warmth,

whether by means of hot sand, or hot or vapour baths. When the refrigeration is not considerable we may prefer cold affusion, or rubbing the extremities with ice. In the cholera, the sudden cold produced by such applications was succeeded by a salutary re-action and notable increase of temperature. When the temperature has already sunk many degrees, it is raised again by the addition of caloric only with great difficulty, never to the normal mean, and speedily lost again as soon as the application is discontinued, in spite of the child being surrounded by non-conducting articles of clothing. It is only then at the commencement of the disease that any such means can be of avail. If the conclusions of comparative physiology are of any value we should also give aliment; for, according to the observations of Chossat, the digestion of food renders the retention of communicated caloric more easy, and effects that which mere warming will not alone.

D. *General Observations on the Temperature in Disease.*

The slightest derangement of health with accession of fever will cause an increase of temperature that no variations of the physiological phenomena or exposure to a medium of even 104° will induce. So, although under ordinary circumstances, the system of the infant is enabled to resist, to a certain point, the tendency to cool, when affected by scleremis, we have seen the thermometer descend surprisingly. Thermometrical experiments justify the old division of diseases into Pyretic and Apyretic. It is a remarkable fact, that there should be so few diseases attended by an actual diminution of temperature, and it is to be observed that this is attended with a like peculiarity of other functions; for, just as the pathological circumstances are frequent under which the pulse and respirations are accelerated, are they rare in which these fall below the mean.

In considering the morbid conditions of temperature, we must distinguish such modifications as are *partial* from those which are *general*. Thus, we may have the temperature generally and uniformly augmented, which is the common circumstance. At other times, the increased heat of the internal organs may be noted at the axilla, while the surface and extremities may be colder, as in ague. The heat may also be augmented upon limited portions of the surface, as in eruptions of the face and stomatitis, when, however, it does not exceed that felt in the axilla, which is also increased. A diminution may also be local, as in some cases of paralysis and gangrene of the mouth, the general temperature being stationary, or even increased, if fever is present. At other times the chill is universal, as in scleremis.

Although sometimes the temperature attains its *maximum* only when the disease is at its height, it is ordinarily at the *commencement* (especially in typhoid fever and pneumonia) that it does so. When a *cure* occurs, the high temperature gradually diminishes, but a temperature above the mean remains during convalescence, whatever may have been the feebleness and exhaustion produced by the disease and remedies, and although the patient is really more sensible to cold than in health. The modification which the temperature undergoes on the *approach* of *death* is various; for if, in some cases, it becomes gradually lowered, especially at the extremities, as the fatal period approaches, in others, it attains its maximum during the last

few hours of life, and the highest figure was observed an hour prior to death.

What are the limits of the *oscillation* of *temperatures* in a sick child? Andral has found this to be very restricted in adults, viz., between 95° and 107½° (cholera not being included;) but in children the range is much more considerable, viz., from 72 to 109°. This difference does not arise from the thermometric results in the child and adult differing in the same disease, for, on the contrary, the identity of the figures is almost complete, however different the symptoms, forms, and gravity of the affections may be at the two periods. The absence of agreement is entirely due to the low temperature observed in the œdema of infants. The maximum (109°) observed in children is almost identical with that noted by Andral in adults; so that a rise of 10 or 11° above the mean is the extent which the child will support. Even an increase of 6 or 7° is a very considerable one, so that a maximum of 106° or even 104° is by no means of frequent occurrence. When we consider the dry and burning sensation, the skin of a fever patient imparts to the hand, we have difficulty in crediting the fact that the thermometer has only risen some 4° or 5°, and that the extreme limit of its elevation is 109: but we cease to feel surprise upon considering that the various physiological acts of life give rise to insignificant variations, and that plunging the body into the hottest medium it will bear only increases the temp. 4 or 5°. On comparing the experiments of M. Roger with those of Delaroche, Berger, and Chossat, on mammifera and birds, and considering the correspondence of the one with the other, we may conclude that man and warm-blooded animals cannot maintain life if their temperature be augmented more than 12° above its normal mean.

In the child, as in the adult, the thermometer may *descend* much lower than it rises—the inferior limit extending nearly thrice as far as the higher one. Thus, while in augmentation of 10 or 11° will cause the death of the child, a loss of between 20 and 30° may be sustained before this takes place. Yet a loss of 8 or 9° seems incompatible with a return to a healthy existence; for no child has ever been observed to be cured in whom the thermometer has sunk below 90°. Czermak states, however, as regards adults, that a cure may be obtained in cholera, although the thermometer may have sunk to 75°. However this may be in a gradual diminution of temperature, Currie has shewn that healthy individuals cannot expose themselves safely to the lowering of their temperature several degrees, (from 4° to 12° as a maximum.) The lowest limit to which the thermometer may descend is very much the same in all animals of warm blood as in man, maintaining the analogy indicated for the high temperatures.

Practical Applications.—"As we have already observed, the thermometer may be of considerable use in the *Diagnosis* of disease. Increase of heat and a rapid pulse are the constituent elements of the febrile condition; but the first of these possesses much more semeiological value than the second: for the pulse is often rapid both in health and disease without corresponding increase of temp., but increase of temp. always leads to a quick pulse—whence it results that a quick pulse alone could not determine the presence of fever, while the exclusive consideration of augmented heat might do so. It is of the more importance to pay attention to the temperature, as in new-born children a state of perfect

health may exist in apparently disordered conditions of the pulse and respiration. The normal oscillations of the pulse vary from 80 to 120, or even 140, and the number of respirations may, in quite healthy children, amount to 50 or even 80; so that we must not believe in the existence of febrile action in such cases unless the temp. reaches more than 100½°; on the other hand, (very rarely however,) the pulse may be so little increased, that we might overlook the existence of fever if we neglected the careful appreciation of the augmented temperature.

"Although we learn from the thermometer that fever exists, it does not indicate its nature, for the same maxima of temperature may be present in typhoid, in eruptive fever, pneumonia, meningitis, &c. The increase of heat considered alone has then little semeiological value, but compared with other phenomena it has much. Thus typhoid is the only febrile affection of children in which we have great heat with a moderate pulse; so that, when we see a child exhibiting a temp. of 104 or 406°, the pulse being only 100, we may infallibly, from this non-correspondence, pronounce a dothienenteritis to be present."

The author makes other observations upon the diagnosis of *enteritis*, *meningitis*, and *pneumonia*; but to quote them would be only to repeat those we have recited under each of these articles. We may extract some of his observations upon the utility of the thermometer in *Prognosis*:—

"As a general rule, an excessive increase of heat must be regarded as a bad sign. Except in intermittent fever, which usually terminates favourably, there is almost always great danger when the therm. reaches 106°, such cases usually terminating fatally. Below 106° the prognostic value of the therm. becomes much diminished; for we have seen the same max. 104 or 105° in an ephemeral fever and a fatal pneumonia. In the pyrexiæ, and especially eruptive fever, the cases in which the heat is most developed are usually those presenting most severity. Thus, in scarlatina and variola, in which the temp. is so much more developed than in rubeola, the danger is likewise much more considerable.

"If, during the premonitory symptoms of an *exanthem*, there is excessive intensity of heat, we must fear a too large development of the eruption, and irregular form of the disease, or some complication; and our prognosis must be unfavourable accordingly. So a high temp. (105 or 106°) at the commencement of *typhoid* leads us to fear a long duration and uncertain results. So too in *acute phlegmasiæ*, the amount of heat developed at their commencement is a measure of their gravity. A high temperature ushering in a *pneumonia* or *bronchitis*, *enteritis* or *peritonitis*, should give rise to alarm. But, when we compare the phlegmasiæ with each other, the gravity of the prognostic is not alike in all. A meningitis may be fatal with the therm. at 99° or even 97½, while the patient may recover from a pneumonia even if it is at 104°.

"In these febrile affections, which are intense from the commencement, the *maxima* of heat almost always show themselves from the commencement, and we cannot draw any favourable deduction from the mere diminution of temp. which may occur later. When this, however, coincides with other signs of amendment, and is gradual and regular, we hope for a cure. In other cases where the termination is to be fatal, the temp. after losing its temporary elevation is subjected, to the end of the disease, to irregular alternations, and generally without any relation to the greater or less danger the different phases of the affection may present."

In regard to *therapeutical conclusions*, Dr. Roger agrees with Edwards as to the feeble powers of calorification of the new-born child, and the necessity there is for maintaining its temperature by appropriate clothing and even artificial heat if requisite. He exposes the errors of those who would endeavour to harden these little creatures by exposure to cold, and

animadverts upon the murderous practice obligatory throughout France (notwithstanding the often-repeated protests of medical men,) of carrying children to the Registrar's Office within the first three days of their birth for the purpose of verifying, and with the certain effect of endangering their existence.

He also insists on the importance of employing the thermometer for the recognition of such cases as require the application of cold and other measures for the reduction of exaggerated temperature; such application being capable of due regulation only by its means.

Dr. Roger concludes his Essay with reviewing the various theories of *Animal Heat*, and states his belief that none of these are exclusively correct:—

"We have seen in various cases, the three principal functions, respiration, caloricity, and circulation, simultaneously exalted or depressed; but where is the point of departure of the exaltation so remarkable in bronchitis, and especially in pneumonia? How do we explain the simultaneous depression observed at the middle stage of meningitis, in cholera, and still more in the œdema of infants? Is it the cold which benumbs every function, or, on the contrary, the languor of the respiratory and circulatory functions which induces refrigeration? The order of the succession of phenomena escapes us: it is a complete circle, whose initial point is nowhere discernible. Thus, relatively to the obscure and complex question of the theory of the development of animal heat, our thermometrical experiments reject all exclusiveness. Is it not, in fact, more rational to suppose that in the animal economy—in which so many chemical combinations and decompositions are in incessant operation—the sources of animal heat may be manifold, as they are in the physical world? May not the digestive, respiratory, nervous, circulatory, and cutaneous functions, each in an indeterminate degree, contribute to the maintenance of animal heat, which other active functions, as secretion, transformation, pulmonary exhalation, tend to abstract—not to notice the operation of external influences. The derangement of the equilibrium of these contrary forces, whose power has not yet been calculated, may lead to, by a mechanism not yet known to science, the heating or cooling of the body in disease."

In concluding our analysis of this valuable and interesting Essay, we must not omit to state, that the particulars of every thermometrical trial are detailed in the tabular form.*

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* After we had completed the above article, we met with, in the *Philadelphia Med Exam.* (No. IX. for 1845,) a record by Dr. Dowler of New Orleans, of the temperatures of two cases observed by him, which is too extraordinary not to be noticed. The first one was that of a man æt. 30, who died of acute typhoid fever. The temp. varied in the axilla for two hours and a half after death (that of the dead-house being 94°) from 109 to 110¾; in the rectum, it was 111¼, and at the epigastrium 109 and 110°. The other case was one of *coup de soleil*. Temp. in axilla 20 minutes *before death* 111°; 15 minutes *after death* 112°; 1 hour after 113°. The body was now stripped and the axilla exposed, but still gave a temp. gradually decreasing from 112 to 109° for 3 hours after death. The exactitude of these figures may be well called into question! The temp. of the air varied from 80° at 6 A. M. to 96° at 4 P. M.; but that of the day prior to the man's death is from its intensity worthy of record. 23d July, 7 A. M. 85°; at 9, 90°; at 10 in the sun 130°; 2 P. M. near the sun 150°, sand in the street 152°; 8 P. M. 89°. Fifteen persons perished from insolation.

ELEMENTS OF ANATOMY. By *Jones Quain*, M.D. Edited by Professors *Richard Quain* and *William Sharpey*, M.D. 8vo. Part 2. Taylor and Walton, 1846.

A PERIOD of more than two years has intervened between the appearance of the first and second parts of Dr. Quain's useful work; a delay which might have been avoided if the able editors had infused a little more activity into their proceedings. We have thought it right to notice this circumstance, because the patience of purchasers has, of late years, been considerably tried in matters of this kind. The principal feature of this new edition, is the introduction of a concise account of the structural or general anatomy of the various fluids and tissues, from the pen of Dr. Sharpey. This additional matter occupies in the first part eighty-four, and in the present volume one hundred pages.

There is a process constantly proceeding in the animal economy, which, although it must be classed among the most important of the vital actions, is but very imperfectly understood; we allude to the production or formation of the red particles of the blood. The vast activity with which the metamorphosis of the various organs is incessantly proceeding and the consequent conversion of the blood, notwithstanding the fixed attention that has been latterly directed to that process, owing chiefly to the brilliant expositions contained in the writings of Liebig, is scarcely yet duly estimated by physiologists. It is apparent that the nearest approximation to the measure of these changes would be obtained by determining the actual amount of matter poured into the blood in a given time by the thoracic duct and by the right trunk of the lymphatic system, as those are the channels by which all the débris of the system and all the new nutritive matter are conveyed. According to a series of experiments lately performed by Professor Bidder of the University of Dorpat, and recorded in Müller's Archiv. for the last year, the quantity of fluids passing through the thoracic duct alone in 24 hours is, in cats, equal to the amount of the whole of the blood contained in the body; in dogs, it is about one-third less. Even granting that these estimates, which exceed those of other authors, are exaggerated, it is certain that canals of the large size of those constituting the two lymphatic-trunks, constantly pouring their contents into the venous system, must introduce a large amount of fluid per diem; and further, admitting, what is proved by various observations, that the red corpuscles are not changed and renewed with the same facility as the other constituents of the blood, still the reproduction of these bodies must be incessantly proceeding.

As to the mode in which this reproduction is effected, the most conflicting accounts have been given: on one point, however, all observers are agreed, that whatever may be the future form of the particle, whether circular and bi-concave, as in mammals, or oval and bi-convex, as in birds, reptiles and fishes, it commences as a round vesicle or cell. In reference to the process in the blastoderma or germinal membrane of the ovum, Dr. Sharpey observes, "as to the earlier part of the process—the production of the above-mentioned round cells, whose subsequent conversion into

coloured oval discs has just been described,—the statements of observers differ so widely, that no consistent account can be founded on them. By one it has been imagined, that they are formed from the oil globules known to exist in the yolk, which serve as nuclei, and become enclosed in envelopes. Reichert supposes that they are produced within parent cells, which proceed from the central part of the yolk to the germinal membrane, generate round nucleated blood-corpuscles in their interior, and discharge them, by rupture, into the blood-vessels. Another inquirer finds, that the blood-corpuscle begins as a small granule, which rapidly enlarges into a spherical cell, and separates into nucleus and envelope. Lastly, Prevost and Lebert declare, that the blood-corpuscles, even on their first appearance, are round, slightly flattened, colourless, nucleated cells, which differ from all other cells in the ovum; and they could find no transitional forms indicating a transformation of any of the pre-existing cells of the ovum into these early blood-cells." P. xci.

With respect to the embryo of mammiferous animals the author adopts the views of Wagner and Bischoff, that the primary blood-cells are round, nucleated, and colourless cells, not differing in appearance from the common primary cells of which all the solid parts of the embryo are at first composed. Subsequent to birth the new red particles are, with other physiologists, supposed to be derived from the corpuscles of the lymph and chyle, which, passing into the sanguiferous system, become the pale corpuscles of the blood, whilst these, in their turn, become flattened, losing their nuclei, and acquiring colouring matter, are thus gradually converted into red discs: the writer, however, further thinks, that the pale or colourless corpuscles may be also generated in the blood-vessels themselves.

One of the interesting results of microscopic anatomy is the establishment of the fact, that the skin of the dark races of mankind does not contain any peculiar layer, the so called rete mucosum, which is wanting in the Caucasian variety.

"The dark colour of the Negro is known to have its seat in the cuticle, and chiefly in the deeper and softer part named the rete mucosum. According to Henlé, it is caused by the presence of pigment cells, resembling those of the choroid in almost every respect save their size, which is somewhat less. These are intermixed with colourless cells, and on the proportion of the two the depth of colour of different parts depends. According to the same authority, the darker parts of the European skin owe their colour to pigment cells like those of the Negro, only still smaller in size, less defined in their outline, and less numerous." P. cvii.

The mechanical texture of bone, when viewed in a collective manner, offers a beautiful example of the doctrine of final causes in the animal organism; in fact, the most minute parts revealed by the microscope present only a repetition of what has so long commanded the admiration of all reflecting minds when seen by the naked eye. The Haversian canals —the lacunæ, nay, even the canaliculi—what are these but the central hollow cylinder, and the cells of the cancelli, on an extremely small scale? Anatomists, indeed, are content with regarding them as being essentially passages for the conveyance of the nutricious fluids, but we hold the primary object of the whole formation to be *mechanical*, affording, with the least possible amount of material, the greatest quantum of resistance.

The section on this subject, and on the formation of bone, to which it is well known Dr. Sharpey has contributed many important facts, is very complete, and will repay a careful perusal. A minute account is given of the lamellæ surrounding, in a series of concentric rings, the Haversian canals. When examined in a bone deprived of its earthy matter, the lamellæ are seen to be perforated with fine apertures, described originally by Deutsch, and which Dr. Sharpey conceives to be nothing else than the transverse sections of the minute pores, known as the canaliculi.

"According to this view, therefore, the canaliculi might (in a certain sense) be conceived to result from the apposition of a series of perforated plates, the apertures of each plate corresponding to those of the plates contiguous with it; in short, they might be compared to holes bored to some depth in a straight or crooked direction through the leaves of a book, in which case it is plain that the perforations of the adjoining leaves would correspond.

"But the lamellæ have a further structure. To see this the thinnest part of a detached shred or film must be examined; it will then appear plainly that they are made up of transparent fibres, decussating each other in form of an exceedingly fine net-work, and that the perforations correspond to the intervals or openings between the reticulated fibres. The fibres intersect obliquely, and they seem to coalesce at the points of intersection, for they cannot be teased out from one another; but at the torn edge of the lamellæ they may often be seen separate for a little way, standing out like the threads of a fringe. Most generally they are straight, as represented in the figure; but they are not always so, for in some parts they assume a curvilinear direction. Acetic acid causes these fibres to swell up and become indistinct, like the white fibres of cellular and fibrous tissue." P. cxliii.

As to the ossific process, the author confirms the opinion that, although bones generally are formed in a nidus of cartilage, yet, that the tabular bones of the skull are developed in a membranous tissue of a totally distinct nature. In this, the intra-membranous form of ossification, "the growing bone shoots into the soft tissue, in form of transparent fibres, resembling those of fibrous texture, more or less intermixed with granular corpuscles, and these fibres become charged with earthy salts;" the cells are also involved in the process, but in what way is not apparent. Another instance of this *intra-membranous* ossification is afforded in the deposit of bone which takes place immediately beneath the periosteum, in which situation the vascular soft tissue in direct contact with the surface of the growing bone is not cartilage, but consists of fibres and granular corpuscles; "in fact the increase takes place by intra-membranous ossification, and accordingly the Haversian canals of the shaft are formed in the same way as those of the tabular bones of the skull." Some novel details are recorded relating to the process as it occurs in cartilage, which we regret our limits will not allow us to extract.

In the account of the muscular tissue a very interesting description and representation are given of some preparations made by Mr. Lealand, a skilful optician residing in the metropolis.

"When a fibril thus completely insulated is highly magnified, it is seen to consist of a single row of minute particles, connected together like a string of beads. These particles (named 'sarcous elements' by Bowman,) when viewed with a magnifying power of 400 or 600, appear like little dark quadrangular and generally rectangular bodies, with bright intervals between them, as if they were

connected together by some pellucid substance; but on closer examination, provided the defining power of the instrument is good, a very faint dark line or shadow will be discovered passing across the fibril in the middle of each of the bright spaces, and sometimes also a bright border may be perceived on either side of the fibril, so that each of the rectangular dark bodies appears then to be surrounded with a bright area having a similar quadrangular outline, as represented in the figure, and it may therefore be inferred that the pellucid substance incloses it on all sides. In short, it would seem that the elementary particles of which the fibril is made up, are little masses of pellucid substance, presenting a rectangular outline, and appearing dark in the centre. Their appearance, indeed, suggests the notion of minute vesicular bodies or cells, cohering in a linear series, the faint transverse marks between being the lines of junction. But although this idea very naturally presents itself, we must not assume that the reality of it is established. With a still higher magnifying power, the dark central part appears constricted in the middle, or looks as if it consisted of two portions joined together. When the focus is altered, the internal dark part becomes light; it is therefore evidently transparent, and its dark aspect is probably owing to its refracting the light differently from the surrounding substance." P. clxviii.

This additional and indisputable proof of the quadrangular outline of the sarcous elements, must remove any doubts, if such still exist, as to entire accuracy of Mr. Bowman's observations.

We have not space to make any special reference to the descriptive and surgical anatomy of the vascular and nervous systems, edited by Mr. Quain. It would, however, be unjust to close this article without stating that very considerable additions have been made in this division of the work, advantage having been taken of the numerous contributions by which these branches of anatomical science have been enriched of late years, both in this country and on the Continent. These "Elements" may, on the whole, be regarded as constituting one of the most valuable works to which the medical student can apply for assistance in the prosecution of his studies; and we may further safely recommend them to those who are engaged in the more active duties of the profession, on the ground of the judicious combination herein effected of sound scientific research with instructive practical details.

MEDICO-CHIRURGICAL TRANSACTIONS, Published by the Royal Medical and Chirurgical Society of London. Volume the Twenty-eighth (the Tenth of the Second Series) 1845.

[Continued from page 216.]

VIII. OBSERVATIONS ON CLEFT PALATE, AND ON STAPHYLORAPHY. By *W. Fergusson*, Esq., Professor of Surgery in King's College, London.

THE author, after making some remarks on the condition of the parts in this malformation, briefly notices the various operative proceedings which have been adopted to remedy the inconvenience, and particularly the incisions which have been made by operators with the intention of facilitating

the approximation of the edges of the fissure. Mr. Fergusson calls attention to certain conspicuous movements in the soft flaps which may be noticed during the examination of the throat of a person whose palate is cleft. The flaps may be seen under four different conditions. "First. If the parts be not irritated in any way, the gap will be quite conspicuous, the lateral flaps will be distinct, and the posterior nares, with the upper end of the pharynx, will be observed, above and behind. Second. If the flaps be touched, they will in all probability be jerked upwards by a motion seemingly commencing at the middle of each. Third. If the parts be further irritated, as by pushing the finger against them into the fissure, each flap is forcibly drawn upwards and outwards, and can scarcely be distinguished from the rest of the parts, forming the sides of the nostrils and throat. And, fourth. If the parts further back be irritated, as in the second act of deglutition, the margins of the fissure are forced together, by the action of the superior constrictor muscle."

All these conditions and movements are, in the author's opinion, very readily accounted for. In the first instance, the parts may be deemed in a quiescent state; in the second, the levatores palati are called into play, and move the flaps as described; and in the third, these muscles act still more forcibly, and the palato-pharyngei will join in drawing the parts outwards. The fourth condition need not be again described.

If the free margin on one side of the fissure be seized with the forceps, drawn towards the mesial line, and the flap be then irritated, it will be drawn upwards and outwards with remarkable force; this movement, it is evident to the author, can only be effected by two muscles, the levator palati and palato-pharyngeus. These muscles, then, he regards as the chief mechanical obstacles to the junction of the margins in the mesial line. He considers that the tensor palati and palato-glossus have but little influence in widening the fissure. Mr. Fergusson therefore proposes, as an important accessory to the operation of staphyloraphy, that the surgeon should, on strictly scientific grounds and in accordance with the modern principles of myotomy, so conduct his incisions as to destroy all motory power in the soft palate for the time being, and thus permit that repose of the stretched velum which is so essential to a happy result; in other words, he advises the division of the levator palati, the palato pharyngeus and the palato-glossus muscles. The first of these he deems of the greatest importance, the second scarcely less so, and the third may be effected or not, as the circumstances seem to demand. Within the last twelve months he has operated on two cases of congenital cleft palate, in accordance with these views, and the results have been most satisfactory, as regards the union of the lateral portions. The steps which he follows are these:—

"With a knife whose blade is somewhat like the point of a lancet, the cutting edge being about a quarter of an inch in extent, and the flat surface being bent semicircularly, I make an incision about half an inch long, on each side of the posterior nares, a little above and parallel with the palatine flaps, and across a line straight downwards from the lower opening of the Eustachian tube, by which I divide the levator palati muscle on both sides, just above its attachment to the palate. Next I pare the edges of the fissure with a straight blunt-pointed bistoury, removing little more than the mucous membrane; then, with a pair of

long blunt-pointed curved scissors, I divide the posterior pillar of the fauces, immediately behind the tonsil, and, if it seems necessary, cut across the anterior pillar too; the wound in each part being about a quarter of an inch in extent. Lastly, the stitches are introduced by means of a curved needle, set in a handle; and, the threads being tied so as to keep the cut edges of the fissure accurately in contact, the operation is completed. These different incisions may be made in the order here detailed, or possibly it may be found most convenient to divide the palato-pharyngeus first, next the levator palati, and then to pare the edges when the muscular action has been taken off.

"Each of these steps requires some little separate notice. The first incision, it will be remarked, differs from all others hitherto proposed, and is founded on consideration of the anatomy of the parts. The levator palati, I have no doubt, is the main obstacle to the approximation of the margins, and is the principal cause of unsteadiness in the velum during the operation, and after it has been accomplished. Its division may be effected through the method above recommended, but should the flap appear tense after the knife has been used, the incision may be further extended in case the muscle may not have been completely cut across. The extension of the incision, even without reference to the division of muscular fibres, will aid greatly in relaxing the sides of the palate. In many instances, I believe that the levator muscle might be divided by a submucous incision, by plunging the blade through the mucous covering, and then moving it freely across the muscle." P. 292.

The parts concerned in the operation are represented in a wood-cut which is not, however, calculated to be of much assistance in guiding the surgeon. We need not follow the author in his minute description of the various manipulations and modes of overcoming the difficulties of this operation. Those who may wish to test the plan recommended, will no doubt consult the paper itself. There is an Appendix giving an account of the two cases, referred to in this paper.

The suggestions of Mr. Fergusson are ingenious, and merit consideration, but we must confess that we are not sanguine as to their results in diminishing the number of failures which unfortunately are of frequent occurrence after the operation of Staphyloraphy by the most skilful surgeons.

IX. On the Pulsating Tumours of Bone, with the Account of a Case in which a Ligature was placed around the Common Iliac Artery. By *Edward Stanley*, F.R.S.

The recent occurrence of a case in St. Bartholomew's Hospital of pulsating tumour originating in the walls of the pelvis, in which a ligature was placed around the common iliac artery, has induced Mr. Stanley to place before the Society in connection with the narrative of this case, those circumstances in the history of the tumours of bone which bear on the important fact, that certain of these tumors possess a pulsation identical in character with the pulsation of aneurism. He states that three distinct sources of pulsation in tumours can be recognised. 1. The proximity of a large arterial trunk. 2. The development of blood-vessels and blood-cells constituting a sort of erectile tissue within the tumour. 3. Enlargement of the arteries of the bone in which the tumour has originated.

Of pulsation dependent on the proximity of a large arterial trunk, several cases are related. In one, a tumour of the arm, the ligature of the subclavian artery was recommended but not assented to. In another, in which there was a painful swelling above the knee and around the back part and sides of the lower-third of the thigh, it was agreed in consultation that sufficient ground existed for believing the tumour to be a popliteal aneurism, and accordingly the femoral artery was tied. Four other cases are mentioned, and Mr. Stanley remarks:—

"Here are six examples of pulsating tumours differing in their nature, and originating in different bones, but agreeing in the circumstance that no other source of pulsation was discoverable in them, than the contiguity of large arterial trunks; and to the same class of cases, the important one recorded by Mr. Guthrie appears to belong, in which a tumour about as large as an adult head, situated upon the right nates of a female, presented so decidedly the characters of aneurism, that it was believed to be so by Sir Astley Cooper, and other experienced surgeons who were consulted upon the case, and, accordingly, a ligature was placed around the common iliac artery." P. 308.

Of pulsation dependent on the development of blood-vessels and blood-cells constituting a sort of erectile tissue within it.—The case on which this paper is founded appears to have been an example.—The author describes another case of pulsating tumour originating in the femur.

Of pulsation dependent on the enlargement of the arteries of the osseous tissue.—A few cases which have been recorded are briefly alluded to. The author adduces a case of tumour of the thigh-bone, communicated to him by Mr. Luke, who, supposing it to be an aneurism, tied the femoral artery. On examining the limb, the lower third of the femur was found expanded into a spherical tumour, in the interior of which were cells of varying size, some of the largest about an inch in diameter, and filled with blood. Mr. Stanley remarks—

"There is one circumstance in the history of these pulsating tumours which requires especial notice, as it appears to have a material influence on the production of pulsation in them: this is the density and resistance of the structures which immediately invest them. In the instances of the development of the tumour within a bone, a thin osseous shell with thickened periosteum is its first and immediate investment; and in the instances of the development of the tumour upon the outer surface of a bone, thickened periosteum alone will be its first investment; moreover, according to the situation which the tumour happens to occupy, it will be more or less closely confined by the muscles immediately around it, which may then add considerably to the density and resistance of its coverings. Such were the circumstances of the case, recently in St. Bartholomew's Hospital, wherein the pulsating tumour, growing from both surfaces of the ilium, was in great part covered by the periosteum, much thickened, and it was, besides, closely confined by the iliacus internus muscle stretched over it on one side, and by the glutæus medius on the other. It may indeed be doubted whether any of these tumours would pulsate without the resistance derived in one or other direction from the bone or its coverings." P. 313.

In one of the cases above alluded to, a medullary tumour developed in the head of the tibia pulsated in its early stage, but ceased to pulsate directly it had burst through the resistant coverings of the bone. A tumour originating in soft parts, unconnected with any bone, but situated close to

a large artery, and confined within existing structures, and thus approximating in its conditions to the pulsating tumour of bone, may, like it, pulsate in a manner to be mistaken for aneurism, of which Mr. Stanley gives an example. A patient under the care of Mr. Earle had a pulsating tumour below the left clavicle, and accordingly a ligature was placed around the subclavian artery. Some years afterwards it was ascertained that the tumour had originated within the sheath of one of the axillary nerves, and had derived its pulsations from the artery.

After some observations, tending to show the little value to be attached to the existence of a bellows-sound in the diagnosis between aneurism and the pulsating tumour of bone, Mr. Stanley proceeds to relate the case of pulsating tumour of the ilium, wherein a ligature was placed around the common iliac artery. Our space does not admit of our entering upon the details of this case, without which the reader would be unable to appreciate the difficulties of the diagnosis. It appears that, in consultation, the preponderance of opinion was in favour of the tumour being an aneurism, and the operation was accordingly performed. The patient afterwards died of peritonitis. The tumour was composed of a spongy tissue, with cells and convoluted vessels distributed through it. There was a tumour on the inner side of the right arm identical in structure with that of the tumour of the pelvis.

In a postscript, Mr. Stanley refers to some similar cases contained in a memoir on pulsating tumours, designated aneurisms of bone, lately presented to the Royal Academy of Medicine in Paris by M. Roux. In a case of tumour originating in the lower end of the radius, the brachial artery was tied. In another case of tumour projecting from the head of the tibia the femoral artery was tied, after which the swelling disappeared. These cases are regarded as examples of pulsating tumour of bone, wherein blood-vessels, constituting a sort of erectile tissue, are developed within the tumour.

The particulars are added, of two other cases of pulsating tumour, originating in bone, in which the main artery of the limb was tied, on the supposition that the disease was aneurism.

This is a paper of considerable interest in practical value, as showing the necessity for great care in examining deep-seated pulsating tumours, and caution in deciding upon their nature. The many cases of error in diagnosis leading to mistaken practice, which Mr. Stanley has taken the pains to collect in addition to his own, do not constitute a very flattering commentary on the state of surgical science.

X. Description of a Malformation of the Duodenum, with Notices of Analogous Cases. By *Robert Boyd*, M. D., Resident Physician St. Marylebone Infirmary.

The malformation described in this paper was found, on examination of the body of a male still-born infant. The duodenum was much enlarged, and appeared like a bladder two-thirds filled, and contained a greenish-coloured fluid; the lower or most distant part from the stomach was imperforate and of larger calibre than the upper part. At its lowest part the

duodenum was closed by a transparent membrane. Two inches and a quarter above this, a valve extended across, nearly half closing the gut. The great intestines were unusually small. The author mentions several similar cases described by other writers.

XI. CASE OF REMARKABLE HYPERTROPHY OF THE FINGERS IN A GIRL, WITH A NOTICE OF SOME SIMILAR CASES. By *T. B. Curling*, Lecturer on Surgery, &c., London Hospital.

The subject of this curious congenital malformation was Eliza Hitchcock, a young woman aged 15, an inhabitant of Bethnal Green. The following is an account of their present state, which is represented in two excellent plates:—

"On the right hand, the fore, middle and ring fingers are of unusual size. The relative enlargement of the fore and ring fingers is only slight, but the middle one is of extraordinary proportions. It measures as much as five inches and a half in length, and four in circumference of the first phalanx, and is in every respect properly formed. On the left hand, the thumb, index, and middle fingers are hypertrophied, the ring and little fingers remaining of the natural size, and presenting a curious appearance, in contrast with their gigantic neighbours. The finger most enlarged is the index, which measures five inches and a quarter in length, and four inches in circumference. The thumb and middle finger are hypertrophied in a less degree. The middle finger has a lateral incurvation outwards, occasioned apparently by a displacement of the extensor tendon, which forms a bridle along its outer edge. The other enlarged fingers are of the normal shape.

"All parts of these hypertrophied fingers are equally developed in excess—the bones, articulations, integuments, and nails. The middle finger of the right hand and index finger of the left, which have attained the greatest growth, are fixed in an extended position, the girl being unable to bend them. The motions, however, of the several articulations are not destroyed, but the fingers are stiff, probably from long continuance in the straight position; and the girl's inability to bend them appears to be owing to the flexor muscles in the fore-arm not having acquired a development corresponding to the fingers upon which they act, as the motions of those fingers which are hypertrophied in a less degree, are very little, if at all, impaired. The other parts of the upper extremities are in proper proportion to the size of the body. There is merely a fulness at those parts of the hands from which the hypertrophied fingers proceed. Indeed, with these exceptions, all the different parts of the body are of appropriate size and form." P. 339.

The fingers in which the hypertrophy is most remarkable, are only half an inch shorter than the corresponding fingers of the famous giant O'Byrne.

To this case the author adds the particulars of one communicated to him by Professor Owen, and those of another remarkable case for which he is indebted to Mr. Paget. Mr. Curling also gives an account of a cast of a hand thus deformed which is contained in the Museum of King's College, London, and notices two published cases.

In four of the foregoing cases, the hypertrophied fingers were bent to one side, and the author suspects that, in all of them, this inclination was produced, as in the case of Eliza Hitchcock, by the tension of the displaced extensor tendon, which had not elongated in proportion to the increase in

the size of the finger. In reference to the treatment of this disgusting deformity, Mr. Cuding recommends, in a case where one finger only was enlarged to a great extent, and at the same time nearly useless, and interfering with the motions of the adjoining fingers, the removal of the hypertrophied part. In other cases, the enlarged finger might be reduced to a more moderate size by amputation of the distal phalanx.

XII. ON THE OPHTHALMIA OF PUERPERAL WOMEN. By *Robert Lee*, M.D., F.R.S.

The author commences this paper by noticing the observations made by previous writers on this affection. He quotes a case recorded by himself in the 15th volume of the Society's Transactions, and another which occurred in 1832, as tending to prove that a relation exists between uterine phlebitis and the ophthalmia of puerperal women. Many cases of uterine and crural phlebitis came under his observation, during the twelve years which intervened between 1832 and 1844; but in none of these did inflammation of the eyes take place, and an opportunity present itself of proving by dissection, that the ophthalmia of puerperal women is the consequence of inflammation and suppuration of the uterine veins, or that there is a close relation between them. In the month of October, 1844, a case occurred which appeared to establish, in the most conclusive manner, the truth of this view of the pathology of this affection. The point alluded to we consider to be already quite established by the observations of other pathologists, as well as by those of Dr. Lee. We need not therefore dwell on the case before us, which is however a good example of this form of ophthalmia.

XIII. ADDITIONAL OBSERVATIONS ON OBSTRUCTIONS OF THE PULMONARY ARTERIES. By *James Paget*, F.R.C.S., Lecturer on Physiology, and Warden of the College at St. Bartholomew's Hospital.

This case is intended as an appendix to the paper on the same subject in the last volume of these Transactions. It will be recollected that, in our April number (1845) we gave rather a full account of Mr. Paget's previous observations. The present paper contains an interesting case bearing upon the subject of coagulations in the pulmonary arteries. The author's remarks on the effects of these coagulations in the circulation, and functions of the lungs, cannot well be condensed, but deserve to be carefully read by pathologists. In conclusion, he ventures "to suggest that many cases of sudden death, for which no cause has been found, or which have been ascribed to some insufficient or improbable cause, have depended on clots obstructing the pulmonary arteries; and that the clots of the same kind, which are often found in the systemic veins, and are usually ascribed to phlebitis, though the coats of the veins are healthy, are the consequence of stoppage of the blood similar to this which I have described, and from a similar cause. It is no argument against the supposition of the frequency of such arrests or slow movements of the blood

that the pulse continues: for the pulse is not, necessarily, an indication that the blood is flowing through the vessels, any more than a wave is sure evidence of a tide."

In a postscript the author briefly notices the observations of Dr. Angelo Dubini on the same subject, published in the Annali Universali de Medicina.

XIV. Two Cases of Anæsthesia and Loss of Motory Function of the Fifth Nerve. By *James Dixon*, Esq., Assistant Surgeon to the Royal London Ophthalmic Hospital.

The author remarks that an especial interest is imparted to the diseases of the fifth cerebral nerve, by the intimate connection which subsists between it and the senses of sight, smell, and taste: and as the very mechanism of one of these senses, namely, taste, is still a subject of dispute amongst physiologists, he trusts that a report of two cases of anæsthesia of the fifth nerve, which have lately been under his notice, may prove interesting to the Society. In one case, the eye on the affected side became inflamed; and vision was destroyed by a deposit of lymph in the pupil, anterior chamber and substance of the cornea; the same changes taking place in the eye, as follow the division of the fifth nerve in Magendie's vivisections. For the sake of comparison, the author arranges the results of Magendie's experiments and the symptoms observed in this patient's case in opposite columns; and it appears that they correspond in every particular, except as regards the state of the eye and vision.

In the second case, complete anæsthesia had existed for almost a year and a half; and yet there was not the slightest inflammation of the eye, nor any opacity of its humors. In this latter patient, careful experiments were made, to ascertain what effect had been produced upon the tongue in respect of feeling and taste. Both were perfect on the right side. On the left, all the anterior part of the tongue on the left side was deprived of taste and feeling, while both these senses were unimpaired in that portion of the organ to which the lingual branch of the glosso-pharyngeal nerve is distributed.

In a note appended to this interesting communication, Mr. Dixon notices the much greater frequency of disease affecting the fifth nerve on the left, than on the right side of the body. Out of 47 recorded cases of the kind, 30 occurred on the left side, and only 12 on the right; whilst, in five patients, both nerves were affected at the same time.

XV. Account of a Case of External and Internal Cephalhæmatoma complicated with Fracture of the Right Parietal Bone, in a New-born Infant. By *Charles West*, M.D., Lecturer on Midwifery at the Middlesex Hospital, &c.

In this case, a small swelling, the size of a walnut, was noticed a little to the right of the vertex on the third day after birth. The swelling increased in size until it formed a soft elastic non-pulsating tumour of irregularly oval outline, occupying nearly the whole of the right parietal bone. A line circumscribing the base measured twelve inches. The

child's health was at first undisturbed, but she was subsequently attacked with convulsions and died.

"On opening that tumour which was seated over the parietal protuberance, it was found to be filled with coagulated blood. The red particles had subsided for a depth of about three lines; the dark clot beneath was more than half an inch in thickness, firm in texture, and adhering closely to the bone; especially near that situation where the depression had existed between the two tumours. The other, more distinctly fluctuating tumour, contained semi-coagulated blood, of the appearance and consistence of gooseberry jelly, and somewhat less firmly adherent to the bone than was the clot in the other situation. After this blood had been removed, a semi-circular layer of dense, reddish, fibrinous exudation, about three lines broad, wedge-shaped, with its narrow edge directed inwards, was seen extending along the inner and anterior border of the tumour. It was situated immediately beneath the pericranium, adhered very closely to the subjacent bone, and formed, so far as it extended, a raised margin around the effused blood. The sensation it conveyed to the finger was very similar to that which is communicated by the osseous ring that usually surrounds these effusions, though its edge wanted something of the sharpness which that presents. The subjacent surface of the parietal bone was rough and uneven; a condition which, moreover, was not confined to that situation, but existed over a large extent of the bone. This roughness seemed to be owing to the deposit of new osseous matter, which apparently had formed the medium of the firm connection that existed between the clot and the surface of the skull." P. 401.

A fissure was noticed in the right parietal bone.

"On the inner surface of the bone was an effusion of blood between the cranium and dura mater, more than half an inch in thickness, and occupying the whole of the fossa of the parietal bone. The tumour thus formed was of an oval shape, and its surface was slightly irregular. Between the two layers of the dura mater, by which it was covered, were numerous bony deposits, and a ring of newly-formed bone surrounded its base. This ring had not attained the same development in its whole circumference; osseous matter having been abundantly poured out along the frontal margin of the tumour, more sparingly elsewhere, and being entirely absent along its inner border. It appeared to have been formed partly by ossification of the dura mater, partly by heaping up of new bone on the inner surface of the skull. It would have been impossible to ascertain whether the inner table of the skull had contributed, like the outer table, to the process of reparation, by the deposit of new bone, except by the complete removal of the clot, and consequent destruction of the preparation. The clot, therefore, was raised at one edge only, but in that situation the bone was perfectly smooth and unaltered. The blood appeared to have been poured out in successive layers, none of which, however, seemed of very recent date, since all were firmly coagulated, though the red particles had not subsided, but remained equally diffused throughout the clot." P. 402.

There was a depression of the right hemisphere of the brain in a situation corresponding to the tumour; with this exception, there was no other appearance of importance.

The author remarks that, the two features which impart to this case its chief interest, are the fissure of the parietal bone, and the effusion of blood upon the dura mater, both of which have been but rarely noticed. In the absence of any proof of injury having been inflicted on the child, either before, during or after birth, it is not very easy to account for the fissure of the skull. The probabilities appear to be in favour of its occurrence during labour, of which accident there are several cases on record.

Dr. West does not regard the effusion of blood on the surface of the dura-mater as merely the result of Hæmorrhage from the vessels wounded by the fracture of the bone, but considers that the fissure and effusion probably occurred at the same time, and from a similar cause. The yielding structure of the infantile skull, with its membranous fontanelle and unossified sutures, is probably the reason why the effusion of blood upon the surface of the brain does not at first, nor invariably, cause cerebral symptoms.

The affection described in this paper is well known to practical accoucheurs, but we have no where met with so complete and satisfactory account of it as that given by Dr. West.

XVI. LARGE OPENING INTO THE ANTERIOR PART OF THE URETHRA CAUSED BY SLOUGHING, AND ATTENDED BY CONSIDERABLE LOSS OF STRUCTURE, SUCCESSFULLY TREATED BY OPERATION, WITH REMARKS. By *F. Le Gros Clark*, Esq., Assistant Surgeon to St. Thomas's Hospital.

Mr. Clark, after noticing the difficulty of curing urinary fistulæ generally, but more especially those situated in that part of the urethra which is anterior to the scrotum, quotes the experience of Professor Dieffenbach, "who, having succeeded in healing an opening in the anterior portion of the urethra, of sufficient size to admit a large catheter, exultingly congratulates himself on having arrived at the solution of an enigma which had so long puzzled him, and on having mastered a difficulty which had so often foiled him." Dieffenbach attributes the failure of these operations to the presence of the urine, which it is next to impracticable to keep from the edges of a newly-pared wound communicating with the passage. But another difficulty, and one which peculiarly applies to the anterior portion of the urethra, is the extreme thinness of its wall, and tenuity of the integument in this position; and thus, when the edges are fairly brought into contact, there is not superfices enough to present a prospect of union by the first intention. "It has been remarked that the tendency of the *edges* of a wound to unite is proportioned to the extent of surfaces brought into contact; being feeble where the skin is thin, and comparatively vigorous where it is dense and richly supplied with vessels. This axiom being admitted, it is merely a further extension of it to assume that, where two *surfaces*, instead of edges, can be brought into relation with each other, the adhesive tendency would be proportionately great." This, which is the principle of Dieffenbach's operation, was adopted by the author in the treatment of the following case.

A wine-porter had permanent stricture, for which he was operated on by Mr. Clark; but, being of intemperate habits, and not very good constitution, he had acute inflammation of the testicle, followed by sloughing of the scrotum and penis, which, after the healing process was completed, left an aperture in the urethra one inch and a quarter in length, and occupying a small portion of the scrotal division of the passage, and extending forwards for a considerable distance anterior to it. The following were the steps of Mr. Clark's operation for the closure of this opening. A

small inverted portion of skin was first dissected out from the scrotal extremity of the fistula; four incisions were then made, two of which extended downwards and outwards over the scrotum, and the other two upwards and outwards on the sides of the penis; a lateral flap was thus marked out on each side, which was then dissected up; and the two being brought together, *surface to surface*, over the fistulous opening, were maintained in that position by lateral splints of leather, and sutures passed through the latter and skin. A semilunar incision was then made on each side, to relieve the anticipated tension when swelling came on. A full-sized gum-elastic catheter which had been passed prior to the commencement of the operation was left in the bladder. Adhesion took place, throughout the whole extent of the flaps, except at two points, one being at the scrotal extremity of the fistula, the other between the lateral supports: these were freely touched with caustic, and soon closed. A small portion of the margin of one flap sloughed. The operation was performed in November; and at the present date (June 9th) the patient continued to pass his water in a full and natural stream. The small perineal aperture still allowed of the occasional passage of a drop of urine. There is no contraction whatever of the penis.

This case is interesting as showing the practicability of the principles acted upon by Dieffenbach, and is credible to Mr. Clark's surgical skill.

XVII. THE PATHOLOGY OF MENTAL DISEASES. By *John Webster*, M.D., F.R.S.

The present paper may be viewed as a continuation of that on the Statistics of Bethlem Hospital, from the pen of the same author, published in the 26th Volume of the Transactions of the Society. He enters, however, upon new matter when he gives a table exhibiting the numbers of admissions, cures, and deaths occurring among the male and female patients in Bethlem Hospital during the last twenty-two years, and arranged according to the season in which they took place. In drawing the inference from this table that "as the temperature of the weather increased so did mental diseases become more frequent," he seems to have fallen into the error of confounding the times of admission in the several cases with the times at which the patients were first attacked by the disease. Now we have no data to show that these times were so nearly coincident as to furnish similar results in reference to the quarter of the year in which the greatest number of them would be found to have fallen if separately estimated; while the only fact which it concerns us to ascertain is the time of year, or state of weather most marked by the breaking out of the malady, not that different, and later time at which there may have been the greatest influx into an asylum.

The year being divided into quarters of three months in each, the first quarter consisting of the first three months and so on; it appears from the table that, during the second and third quarters of the 22 years referred to, the total number of curable lunatics admitted amounted to 2,736, whereas, during the first and fourth quarters, the number was only 2,239,

being less than the former by 497. It is stated, moreover, in regard to particular months, that the greatest number of curable lunatics were admitted in May, the fewest in January.

Respecting the curability of insanity, it appears that only 986 were discharged convalescent in the first and second quarters taken together, whereas, during the third and fourth quarters, 1,569 patients left the institution free from mental disease. The numbers of deaths in the several quarters taken in order were 74, 55, 62 and 64 respectively.

A subsequent table gives us the gratifying intelligence, that the average weekly number of patients under restraint, amounting in 1840 to 13½, had been 9, 3 and 3 in the several three following years, and was no more than 1½ in the year 1844; thus encouraging the hope that, at no distant date, the whole system of coercion will become a dead letter at Bethlem, as it already has at Hanwell.

The most valuable part of the paper follows, viz., "a report of 36 dissections of insane patients recently performed at Bethlem Hospital, making, with the 72 contained in the previous paper, 108 autopsies," for an account of which the Society and the public are indebted to Dr. Webster. These descriptions state the sex, age, and time of residence in the hospital of the deceased, we regret that the whole duration of the mental malady, its general character, and the manner of death have not been also briefly noticed, since the addition of these particulars would, we think, add much to the interest of the report, without greatly increasing the labour of the compiler. The morbid appearances themselves are concisely and clearly detailed, and are entitled to our confidence, as we have Mr. Lawrence's voucher for their accuracy. Of these, of course, we can give no detailed account, but shall content ourselves with quoting the summary appended by the author, which will convey in small compass a great deal of useful information :—

"According to the above statement, some diseased alterations of structure, more or less evident, in the brain and membranes, were observed in all the thirty-six dissections now detailed; of which the following summary may be given: In thirty-three cases the pia mater was infiltrated. In thirty, there was turgidity of the blood-vessels of the brain and its membranes. In twenty-six, effusion of water had taken place in the ventricles. In sixteen, there was thickening and opacity of the arachnoid coat. In twelve, fluid was met with at the base of the brain. In nine, the consistence of the brain was altered from its normal condition. In eight, patches, or bloody points, appeared on the cut medullary surfaces. In five, the colour of the medullary, or cortical substance, was altered from its healthy hue to a pink, mottled, or rosy tint; and in four cases, blood was effused in the brain, besides other morbid changes of structure of a less important character; for an account of which I would refer to the synopsis, to avoid superfluous repetition. The same may be said in regard to the cases exhibiting diseased alterations of structure in the organs of the chest; of which description there were thirty examples; being five-sixths of the dissections contained in the present series; whilst only twelve patients, or one-third, showed any morbid appearances in the abdominal viscera.

"I subjoin a short abridgment of the pathological changes met with in the brain and membranes of the one hundred and eight autopsies reported in the present and previous communication to the Society. I may remark, that infiltration of the pia mater was observed in ninety two cases. Turgidity of the blood-vessels existed in eighty-nine; fluid was effused in the venticles in sixty-

seven; effusion had taken place at the base of the brain in thirty-nine. There was thickening and opacity of the arachnoid coat in thirty-two. Bloody points were observed on the cut surfaces of the medullary substance in twenty-seven. The colour of the brain appeared changed in nineteen; and in seventeen cases, blood was effused within the cranium. These data indicate unequivocally, that the morbid alterations of structure, characteristic of insanity, which pathologists may expect to find in a majority of cases, will be, infiltration of the pia mater, turgidity of the blood-vessels, and effusion of fluid in the ventricles." P. 451.

We could wish Dr. Webster to be a little more particular in the language which he employs when giving numerical details, since he might thus avoid some obscurity, as well as some inaccuracies, as when he uses the term "relative proportion," or speaks of "a number as exceeding a ratio." We cannot promise always to adopt his inferences, but we are, and ever shall be thankful to him for his facts, and of these we hope that he will not be chary in the supply.

XVIII. On some of the Causes of Pericarditis. By *John Taylor*, M.D., &c.

At the outset, the author divides cases of pericarditis into two classes, viz., 1st. Those occurring in persons previously in good health, or in the course of some sthenic acute disease, as rheumatism; and 2nd, those occurring in persons previously in bad health, or in the progress of some chronic disease.

Of 25 cases subjected in the first instance to analysis he finds 15 to belong to the first and 10 to the second class; and the 15 (except that there is some little doubt about two of them) all occurred in the progress of acute rheumatism. Of the 10, 6 certainly and 1 probably, were accompanied by Bright's disease, and in 3, the state of the urine and kidneys was unknown. These cases might be expected to form the subjects of the immediately following observations; but it is not so in this lengthy and ill-digested paper, six other cases, which are submitted to a different principle of classification (being arranged under four divisions) are embodied with them in establishing the conclusion that pericarditis is of frequent occurrence in connection with acute rheumatism, and also with Bright's disease, while others are added as make-weights in a note, which are not brought into the calculation in the text.

Dr. Taylor next indulges in a theoretical discussion in order to make it appear "probable that the immediate cause of pericarditis and other internal inflammations which so often complicate Bright's disease and acute rheumatism, as well as of the articular affection itself in rheumatism, is a morbid condition of the blood;" and he says, farther on, that "there may be," in this latter disease, "an excess of urea, and perhaps also of other irritating principles in the blood." To us it appears idle to speculate upon a question which can only be determined by direct experiment, and which that may so readily set at rest.

2. *Of the causes of the pericarditis in cases of old adhesion of the pericardium.*

After a more particular account of 20 cases, in which old adhesions of

the pericardium were discovered after death, we have an interesting summary in the following words :—

"Of the twenty cases of adhesion of the pericardium, therefore, there are *three only* in which the previous existence of pleurisy, or of rheumatism, or the *actual* or *probable* presence of Bright's disease, was not *ascertained*, and the *absence* of all these diseases was *ascertained* in *no one case*. With one exception, the adhesion of the pleuræ were either *double*, or on the *left* side; and in this exceptional case the adhesion of the pericardium was over the *right* auricle only." P. 465.

3. *Of the causes of the pericarditis in cases of white spots on the pericardium.*

Of 83 cases where white spots were found on the pericardium without adhesions, there were 58 in which there was found either Bright's disease or some other renal disease, or in which there had formerly existed acute or chronic rheumatism.

In 23 cases of the 83, there is no information given respecting either rheumatism or renal disease; and in 2 cases only was the absence of both these maladies ascertained, and in these pleuritic adhesions existed.

Of these 23 cases, there were 11 with old adhesions of the pleuræ, 6 in which there were none, 6 in which this fact was undetermined.

Of 22 cases of the 83 with white patch, without previous rheumatism but with some disease of the kidneys, 17 had old adhesions of the pleuræ. Dr. Taylor concludes, from the examination of these cases.

1st. That in all of them there *may* have been either rheumatism, or Bright's disease, or inflammation of the pleura.

2dly. That in 17 cases only the existence of any of these diseases was not ascertained, and he thinks that he has shown, though we cannot go with him quite so far, that one or other of the three causes under discussion was ascertained to exist in almost every case examined.

Of the re-capitulated reasons for believing pleuritis to be a cause of pericarditis we need only mention one, namely, that in one class of cases where the two diseases co-exist, the post-mortem appearances show the disease in the pleura to be older than that in the pericardium.

We pass by the statement of the opinions of other authors, viz., Messrs. Louis, Bouillaud and Hache, on the causes of pericarditis in general, of those of Drs. Hope, Watson, and Williams, on rheumatism as one of them, and of those of Drs. Bright, Christison, Rilliet and Barthez, on albuminuria as another, and we give the comparative results in Dr. Taylor's words:

"The chief particulars, therefore, in which my results differ from those obtained by other observers, are these:—1. I have found an adequate cause for the pericarditis in *all* my cases. 2. Whilst I have found rheumatism, as a complication, in quite as great a proportion of cases as any one who has given us a numerical account of his observations, yet its frequency, relatively to other causes, has been less in my experience than in that of any writer with whom I am acquainted. 3. I have found Bright's disease to be the cause of pericarditis in a large proportion of the cases which have fallen under my notice." P. 478.

The next head of investigation is

I. OF RHEUMATISM CONSIDERED AS A CAUSE OF PERICARDITIS.

1. *Frequency with which pericarditis and endocarditis occur in rheumatism.*—In an analysis of 47 cases of acute or subacute rheumatism that occurred in the practice of Drs. Elliotson, Carswell, and Williams, we find 11 instances of valvular disease probably old in most of them, 2 of slight recent valvular disease, and no evidence of any disease in the rest.

Again, in 86 cases of the same kind, were found 6 of acute pericarditis, 19 of probably for the most part old valvular disease; and, respecting the rest, in 19 there was no evidence of heart-disease, and in 43, none concerning the condition of the heart.

In another set of 75 cases, treated by Dr. Taylor himself, 8 had pericarditis, and in 2 more it was suspected, while there was valvular disease, old or recent, in 34, in 4 of which pericarditis also existed.

The published experiences of Bouillaud, Hope, Williams, Macleod, W. Budd, Rilliet and Barthez, and Chomel, on the question of the frequency of endocarditis and pericarditis in rheumatism, are passed in review, and exhibit very considerable discrepancies. Thus it is stated at page 490, "If we take pericarditis and endocarditis *together*, we shall find that Bouillaud observed this complication in $\frac{6}{7}$ of the cases of acute rheumatism, Dr. Williams in fully $\frac{3}{4}$, Chomel in about $\frac{1}{2}$, Dr. Hope in $\frac{1}{3}$, and Dr. Budd in $\frac{1}{4}$. Dr. Taylor found the same complication in $\frac{1}{2}$ cases treated by himself, and in $\frac{1}{7}$ of those treated by the other physicians to the hospital, conjointly."

In the cases of acute rheumatism occurring in University College Hospital, there was found to be *recent* endocarditis or pericarditis in 1 in 17 of those treated by Drs. Carswell and Williams; in 1 in 5, about, of those treated by Dr. Taylor himself.

He thinks that this greater proportion of recent heart-affections in his own cases, as compared with those of his colleagues and of M. Chomel arises from his having observed and recorded some slight cases which others might have thought unworthy of note; while he conceives that the smaller proportion of instances of *recent* pericarditis and endocarditis in his own practice as compared with the results obtained by many other physicians, is due to their classing together all the cases in which valvular murmurs were first observed in connection with rheumatism, and not separating the cases of *recent* from those of old affections of the heart, of which last he makes it appear probable that the proportion was very considerable.

Dr. Taylor states, in a note, that having examined with care 1,026 patients labouring under every variety of disease on their first admission into University College Hospital, he found a murmur indicative of valvular disease of the heart in 385 cases, that is in 37·524 per cent. But of these patients there were 82 suffering from acute or sub-acute rheumatism, of which 82 cases 55 were accompanied by cardiac murmur. Excluding then these cases, we have 944 persons suffering under all kinds of disease, except rheumatism, of whom 330, that is nearly 35 per cent. have cardiac murmur.

Dr. Taylor then recurs to his 75 cases of rheumatism, mentioned sometime before, in 34 of which, valvular murmurs were heard, and derives from this series of observations the ratio of 45·33 per cent. as a

standard whereby to measure the frequency of cardiac murmurs in cases of acute rheumatism generally.

He then proceeds to say "The *excess* in the amount of valvular disease in cases of acute rheumatism, therefore, above that in *all diseases indiscriminately*, is 7·809 per cent; and above that in *all diseases exclusive of rheumatism*, 10·33 per cent."

Now if Dr. Taylor, instead of taking the 75 cases of acute rheumatism exhibiting 34 of valvular disease from which he obtained the standard measure of 45·33 per cent., had taken (and why should he not have done so) the 82 cases of acute and sub-acute rheumatism mentioned in this note, in 55 of which valvular disease was found to exist, he would have obtained 67 per cent. as his standard, and the two excesses would have been 29·476 per cent. and 32 per cent. respectively, or more than three times as great as in the former case. Thus we see how entirely numerical results depend upon the data from which we start, and that conclusions deduced by means of arithmetical calculation, though arrived at by a succession of steps of which many are perfectly trustworthy, partake nevertheless of the imperfection, and insecurity of the grounds upon which they are based.

Our author inclines to the belief that the excessive proportion of valvular murmurs observed by Bouillaud must be owing to his reckoning the inorganic murmurs occurring in patients who were either anæmic at the commencement, or rendered so by his treatment. He next proceeds to another branch of his subject:—

"If we consider *acute pericarditis* apart from endocarditis, on valvular disease, the results are as follows. Bouillaud found this complication in one-half of his cases of acute rheumatism. Dr. Macleod, in one-fifth in *adults*, and in one-half in children (four in eight.) Rilliet, in one-third in children. Dr. W. Budd found it in one out of every eight and a half cases; and I found it in one out of twelve and a half of *my own* cases, (or, including two *slight* cases, in one in nine and a half,) and in one out of seventeen of the rest of the cases observed in University College Hospital." P. 499.

Upon these statements he remarks that, for reasons which we omit, Dr. W. Budd and himself alone give data which admit of fair comparison, and the results are very nearly the same; and the general inferences from the preceding investigation are stated to be—

"1. That acute inflammation of the heart has occurred less frequently as a complication of rheumatism in Dr. Taylor's experience than it has been *believed* to occur in the experience of those writers whose opinions seem to have been most generally adopted by the profession."

"2. That the frequency of inflammation of the heart even in Dr. Taylor's cases has been such as abundantly to show the great influence of acute rheumatism in its production."

2. *Frequency of Morbus Cordis in* CHRONIC *Rheumatism.* Out of 109 cases of chronic rheumatism *taken indiscriminately*, 20 are stated to have had some disease of the heart, chiefly valvular, two only had acute pericarditis, and 87 had no disease of the heart.

"If we compare," says Dr. Taylor, "these cases of chronic with the eighty-six

cases of acute rheumatism, which were observed under the same circumstances we find,—

"1. That the proportion of cases of disease of the heart, *chiefly* valvular, and believed to be *chiefly* old, is nearly the same in both classes, being about 22·09 per cent. in the cases of acute rheumatism, and about 18·34 per cent. in those of the chronic form.

"2. That there is however a small excess of the variety of cases of morbus cordis under consideration among the cases of acute rheumatism, which is probably due to a greater proportion of examples of *recent endocarditis* in this form of the disease.

"3. That the *amount* of the excess just referred to is 3·75 per cent., and assuming it to depend wholly upon *recent* endocarditis, these figures will represent the *amount* of the excess in the proportion of cases of *recent* endocarditis in acute rheumatism *above* the proportion in chronic rheumatism." P. 505.

3. *Frequency of other internal Inflammations than those of the Heart in* ACUTE *Rheumatism.*—Some details are given under this head which it is needless to repeat, as the author himself says that he does not attach much importance to the results which they furnish. They tend to show that inflammations of the lungs, pleura, and parts within the head, are next in order to those of the heart, and that those in the abdomen are the least frequent. An examination of the same point, in reference to chronic rheumatism, gives no more satisfactory information.

Under the head 5, *Of the Circumstances which favour the occurrence of Pericarditis in the course of Rheumatism*, we have metastasis dismissed, we believe very justly, "as not a *frequent* cause of pericarditis." This conclusion is corroborated by a reference to the experience of Drs. Watson, Hope, M. Hache, and Dr. Graves; and the supposed occurrence of rheumatic fever without arthritis, in which the heart has become affected, favours the same view.

As regards the form of rheumatism, if we adopt the division of febrile rheumatism into a fibrous and capsular variety, all the cases of rheumatic pericarditis were observed by Dr. Taylor, and almost all of them by Dr. Macleod, to arise in the former of these.

Something like a presumption is created in favour of the truth of the following inference, viz., that the violence and fatality of rheumatic pericarditis are *generally* greater in the cases in which the rheumatism is *very* acute, than in those in which it is subacute. Whether pericarditis is more *frequent* in the very severe, than in the less severe form of acute rheumatism, is uncertain; neither do we find any guide as to the stage of the rheumatism, in which the pericarditis is wont most frequently to commence. But there seems good reason to believe that rheumatic pericarditis is more frequent and more severe in the first than in subsequent attacks of rheumatism. Previous disease of the heart probably does not increase the liability to attacks of pericarditis in rheumatism. Of the age and sex most liable to this disease, nothing is added to our previous knowledge. Neither can we place any reliance on the observations in reference to the influence of venæsection; we quite agree with the author, that the facts adduced do not meet the real question, and we therefore wonder at his citing them. Plausible hypotheses are too abundant for us to stop to

examine Dr. Taylor's, on the mode in which rheumatism produces pericarditis.

II. OF BRIGHT'S DISEASE OF THE KIDNEYS, AS A CAUSE OF PERICARDITIS, AND (INCIDENTALLY CONSIDERED) OF SOME OTHER INFLAMMATIONS.

In 31 cases of pericarditis observed by Dr. Taylor, 9, if not 11, had Bright's disease. To determine the frequency of pericarditis, and also of some other internal inflammations in cases of Bright's disease, the author next details the number of internal inflammations, under seven heads, either actually existing, or leaving traces of their previous existence, in 50 patients who laboured under this disease, and whose bodies he had examined after death.

The same process being applied to 100 similar cases of Dr. Bright's, published in the Guy's Hospital Reports, numerical results are obtained differing so widely from the former as to show, not that either series of observations is defective or unworthy of credit, but that no calculation of average results can securely be founded on either of them taken alone. And this conclusion is still farther confirmed by the results of an analysis of 129 cases of M. Becquerel, and of 33 of M. Malmsten's, differing considerably from each other, and from those of each of the two series just spoken of. Yet it is from his own 50 cases alone that the author draws his subsequent reasonings.

Dr. Taylor next seeks to determine the frequency of pericarditis, and of some other inflammations, in patients without Bright's disease, by a reference to 142 post-mortem examinations of patients whose kidneys were healthy. We give the results in his own words:—

"(1.) 50 cases of renal disease yielded 48 examples of *acute* inflammations,—*i. e.*, 96 inflammations in every 100 patients; and that these all occurred among 30 out of the 50 patients,—*i. e.*, 60 per cent. of the cases were complicated with internal inflammations, and the number of these inflammations averaged more than 1½ to each patient affected. Also,

"(2.) 50 cases of renal disease yielded 81 examples of *previous* inflammations,—*i. e.*, 162 inflammations in every 100 patients; and that these all occurred among 45 out of the 50 patients,—*i. e.*, 90 per cent. of the cases were complicated with some previous inflammation, and the number of these inflammations averaged above 1¾ to each patient affected.

"On the other hand we find:—

"(1.) 142 cases *without* renal disease yielded 68 examples of acute inflammations,—*i. e.*, 42 inflammations in every 100 patients; and that these all occurred among 51 out of the 142 patients,—*i. e.*, not quite 36 per cent. of the patients had some acute inflammation, and the number of these inflammations averaged ½ each patient affected. Also,

"(2.) 142 cases *without* renal disease yielded 179 examples of *previous* inflammations,—*i. e.*, 126 inflammations in every 100 patients; and that these all occurred among 100 out of the 142 patients,—*i. e.*, about 70¼ per cent. of the cases were complicated with some previous inflammation, and the number of these inflammations averaged nearly 1¼ to each patient affected." P. 543.

It has been seen, in a series of 31 cases of pericarditis mentioned at the commencement of this article, that 18 occurred simultaneously with acute rheumatism, and 9 co-existed with Bright's disease of the kidney, and

this, as far as the number justify, a general inference indicates that rheumatism is twice as fertile in pericarditis as granular kidney. But this may be due to the fact of acute rheumatism being a malady of more frequent occurrence than Bright's disease, and the author wishes to know the comparative efficacy of the two in producing this affection of the heart. In relation to this enquiry, therefore, it becomes necessary to ascertain the relative frequency among physicians' cases of acute rheumatism and Bright's disease, and Dr. Taylor, though he cites facts which have no bearing on the question, yet furnishes sufficient data for the probable conclusion that 1½ to 1 expresses nearly the relative frequency of these two diseases, and would make 4 to 3, on the grounds above stated, express the comparative efficacy sought for. Dr. Taylor, however, makes no application of the indefinite conclusion which he arrives at as to the frequency of the occurrence of the two diseases; but starts on a new tack in order to arrive more directly at the end proposed. Thus, finding 8 cases of acute pericarditis in 75 cases of rheumatic fever, and 16 of this disorder in 183 cases of Bright's disease, he draws the erroneous conclusion that Bright's disease and acute rheumatism appear to have caused acute pericarditis in an equal number of cases; whereas, the premises on which he argues would show the relative frequency of acute pericarditis in equal numbers of cases of acute rheumatism and Bright's disease to be as 11·4 to 9·375.

The conclusion that adhesions of the pericardium (and therefore *previous* attacks of pericarditis) have been produced much more frequently by Bright's disease than by rheumatism, appears to us supported by no sufficient evidence.

Some farther calculations of the frequency of acute endocarditis in the two diseases follow, and also of that of valvular disease, old and recent; with the conclusion that, in both instances, the heart-disease occurs with equal frequency in the two maladies. A kind of arithmetical resumé and farther calculations then follow, for which we must refer to the original paper; wherein will be seen the inconsistency of the results, as well as the explanation of the inconsistency. To the paper too we must refer for the statement of the relative frequency of other acute inflammations, and for the notice of the occurrence of pericarditis in other blood-diseases. The author concludes by calling attention to the constitutional causes of inflammation, and expresses his opinion, "that, in very many cases of acute rheumatism, no undue exposure to cold or wet, or to the influence of any other (if there *be* any other) acknowledged exciting cause of the disease, can be ascertained to have preceded the attack within such a period of time as could justify us in regarding the two events in the relation of cause and effect.

In concluding our very imperfect sketch of this long and rambling paper, it would be great injustice to the author were we not to express our sense of the value of many of the facts, both original and others, which he has brought to bear upon some interesting pathological questions. We have to thank him more especially for the detail of several series of cases observed by himself apparently with much care and accuracy. We think that he has done good service, too, in calling attention to pleurisy as a source of pericardial inflammation, to Bright's disease, as a more influential agent than we had suspected it to be, in producing that and other internal

inflammations, and to the fact of the endocardial murmurs first observed in rheumatic fever, having in many cases an existence prior to, and quite independent of, that disease. The paper seems to us highly useful as a suggestive one, if we may employ such a term; but we certainly can place little or no reliance on the results of the numerical calculation. There is evidence of great haste, and of but little pains, in its composition, considering the scope and bulk of this essay. Dr. Taylor seems throughout to have fallen into one great error; instead of sifting the materials at his command, rejecting what was imperfect or doubtful, but selecting and combining all that was trustworthy to form the basis of his calculations, he has founded these on less extensive data, and has consequently obtained only partial, and sometimes incongruous results, which he wastes much time in endeavouring to reconcile. On the whole, we think he would have done well if he had laboured, prior to its publication, to render his paper more concise and clear, if he had limited his enquiries to a smaller compass, but striven to make all the ground sure over which he passed, if he had omitted all facts but such as he had occasion to make use of, and if he had rigidly abstained from all hypothesis. As the paper stands, it is so long and crude that we almost wonder that space was given it among the Transactions of the Society.

XIX. CASE OF EXCISION OF THE UPPER END OF THE FEMUR, IN AN EXAMPLE OF MORBUS COXARIUS. By *William Fergusson*, Esq., Professor of Surgery in King's College, London.

The subject of this operation was John Clark, æt. 14, a patient in King's College Hospital. The condition of the diseased limb is thus described by Mr. Fergusson:—

"The shaft of the femur sloped obliquely downwards and inwards, and the knee rested on the inner side of the thigh of the sound limb; the head of the bone could be felt, through the soft parts, lying on the dorsum ilii, and its identity could be more accurately ascertained by passing the finger into a large sinus which opened on the surface over and behind the trochanter major. The articular extremity was so isolated that the finger could be passed round it in all directions. There were several small sinuses contiguous to the large one, but it could not be ascertained that any of them led to diseased bone, or communicated in any way with the pelvis. There was a large circular sore which occupied the whole of the skin over the trochanter major, and profuse discharge of thin matter from the open surfaces." P. 572.

As the disease appeared likely to prove fatal, and as the circumstances of the case seemed peculiarly eligible for excision of the head of the femur, the author, with the concurrence of his colleagues, determined to have recourse to the operation.

"A longitudinal opening about six inches long was made in the line of the femur, extending from over the head of the bone to a little below the trochanter major, and the tissues were separated from the shaft of the bone, a little below that process, so as to permit a curved needle to be used for the introduction of a chain saw. This latter step was attended with considerable difficulty owing to the depth and obliquity of the bone, and when accomplished proved of little

value; for after several trials the instruments (which worked very indifferently in my hands) broke, and I was compelled to adopt another mode of procedure. With a sharp-pointed bistoury I separated all the soft parts from the neck of the bone and the trochanters, and then, by causing the knee to be moved across the opposite thigh, and using the femur as a lever, the head and portion of the bone thus isolated was so thrust out of the wound that I could with facility apply the ordinary saw for the requisite section. Not being satisfied with the condition of the interior of the bone at the surface exposed by the saw, I enlarged the opening, and removed about three quarters of an inch more, then closed the wound with a few points of interrupted suture, and covered it loosely with a pledget of lint. No vessel of sufficient magnitude to require a ligature was divided. The cotyloid cavity was filled by a fibro-gelatinous mass, similar to the lining of the sinus." P. 574.

The effects of the operation were not severe. Part of the wound united by the first intention. The patient improved in strength, and six months after the operation, it is stated, that the boy walks about on crutches, and, besides looking hale and plump, expresses himself as being in good health. There is free movement both at the knee and hip, and the sinuses have all but closed.

This case, so far as the author can learn, is the second of the kind attended with a favourable result which has occurred in Britain. The first case occurred to Mr. Anthony White in the year 1818, in the Westminster Hospital. Sir Benjamin Brodie has also removed the head of the femur, and a similar operation was performed in Dublin by the late Mr. Hewson.

"In both these instances the patients died, but the circumstances were not so favourable as in Mr. White's case and my own, for the parties were adults; and in Sir B. Brodie's, the head of the bone was in the acetabulum at the time of the operation. This patient died within a few days after, apparently the direct effect of that proceeding. Mr. Hewson's died three months after, from profuse suppuration, and the cotyloid cavity after death was found to be carious." P. 577.

These are the only examples in which the operation has been performed by British surgeons. Bourgery gives the names of ten surgeons in other parts of the world who have also performed it; of these patients, one-half seem to have died from the proceeding.

Without questioning the propriety of the operation in the preceding case, we consider the excision of the head of the femur to be very rarely applicable, and certainly our present experience of the results of the operation is far from being encouraging. It appears to be adapted to those cases in which the carious head of the bone is displaced upon the dorsum ilii, as in Mr. Fergusson's patient, and in keeping up an exhausting discharge from the neighbouring sinuses, whilst the cotyloid cavity is free from disease. Under such circumstances, the bone being but thinly covered and no vessels interfering, the operation would be neither difficult nor formidable.

XX. On the Minute Structure of the Lungs, and on the Formation of Pulmonary Tubercle. By *George Rainey*, Esq., M.R.C.S., Microscopist of St. Thomas's Hospital.

In this paper, Mr. Rainey gives the results of his investigations on the

structure, functions, and pathology of the lungs with the aid of the microscope. His observations on these subjects, especially on the formation of tubercle, are highly interesting, and are evidently founded on a careful examination of the diseased organ. We regret that these researches cannot be presented to our readers in an abridged form, and that we must therefore be content with this expression of our favorable opinion of the author's labours.

XXI. Two Cases of Aneurism in which there was neither Pulsation nor Abnormal Sound. By *T. A. Barker*, M.D., Physician to St. Thomas's Hospital.

The author observes, that no medical man can have been long in practice without meeting with cases in which extensive disease of the heart and large arteries had long existed, and ultimately proved fatal, without having caused any symptom directing the attention of the patient to the seat of disease; and that there must be few experienced practitioners who, when consulted for some other complaint, have not detected organic disease of the heart, or large vessels, which had previously been overlooked by some medical attendant, not because he was incapable of detecting such disease if he had looked for it, but because the patient had spoken of no symptoms referable to disease of those parts. Dr. Barker gives a minute history of two interesting cases of aneurism. In one case, a large aneurism of the arch of the aorta was not discovered until after death. In the other, an aneurism of the renal artery was not detected until the day before death. He remarks, that what makes these cases worthy of record, is, not that the aneurisms existed without giving rise to prominent and characteristic symptoms, but that, when certain symptoms had arrested his attention, leading him, in the first case, to think it highly probable, and, in the second, possible, that an aneurism existed; the most careful and frequently repeated examinations did not enable him to detect either pulsation or abnormal sounds. Dr. Barker states:—

"There have been other cases less frequent than the above, in which, after careful and repeated examination, no symptoms of aneurism were observed; but on examination after death, some cause for the absence of such symptoms was found, either in the size, shape, or situation of the aneurism, in the mode by which it was covered by other parts, or in the nature of its communication with the artery. In neither of the cases just related, can any such explanation be given, and the care and frequency with which the examinations were made, leave no reason to suppose that any material symptoms which could have assisted me in the diagnosis were present, and overlooked. They may therefore be regarded as aneurisms of considerable size, in situations where such disease can ordinarily be detected without difficulty, but which give rise to none of the ordinary symptoms; and looking at them in this light, I think they are not unimportant additions to our stores of pathological knowledge." P. 609.

The publication of these two valuable cases reflects credit on Dr. Barker's candour, and shows an honest desire for the advancement of medical knowledge.

XXII. AN ACCOUNT OF A SINGULAR CASE IN WHICH THERE WAS A BLACK SECRETION FROM THE SKIN OF THE FOREHEAD, AND UPPER PART OF THE FACE. By *William Teevan*, Esq., M.R.C.S.

The patient was a young lady, aged 15, who was afflicted with a singular black discoloration of the forehead and upper part of the face. "The discoloration was first observed about the middle of last January, on the left under eyelid, near the internal angle of the eye; appearing at the commencement as a brownish spot, which in the course of four or five days assumed a jet black colour, and gradually extended to the entire forehead and eyelids of both eyes. The discoloration never appeared on any other part of the body, and on the forehead was accurately limited by the hair. The patient stated, that on her attempting to wash the black matter off, it caused her so much pain, owing to the sensitiveness of the skin, that she desisted," and, until it was removed by the application of soap and water, she was not aware that it could be removed by ordinary means. The quantity of matter removed was sufficient to darken four basins of water as black as Indian ink. With the exception of occasional headache and pain in the chest the lady appeared in good health; the bowels were generally confined, the catamenia regular, but scanty; her complexion fair, and the hair of a light brown colour. Suspicion of imposition naturally enough arose, and care was taken to sift the case. On the 31st of March, Mr. Teevan

"Washed the black matter from the right under eyelid, at 1 o'clock, and never allowed her to leave my presence until five o'clock, up to which hour no discoloration or alteration in the appearance of the affected part had occurred. Being now, more than ever satisfied, that the patient was imposing, I left her in the drawing-room, and proceeded as far as the door, with the intention of returning home, when her father requested me to remain until seven or eight o'clock, assuring me, that previous to that hour I should be perfectly satisfied respecting the truth of his statement, as the discolouration, according to his observations, did not appear sooner than from four to six hours after ablution. In compliance with this request, I returned to my patient, who, during the few minutes I was absent, had not left the drawing-room. Miss ——— told me that she now began to feel a pricking and burning heat in the affected parts, which invariably preceded, from about a quarter to half an hour, the appearance of the discoloration, and that she was confident the blackness would very soon show itself. At half-past five o'clock, I was astonished at seeing a small dark spot appear upon the right under eyelid, near the inner angle of the eye, which kept gradually extending towards the right temple, so that, in half an hour from its first appearance, the eyelid had become quite black, the forehead, at the same time, assuming the same intense discoloration. I remained with the patient until eight o'clock, and felt perfectly satisfied respecting the truth of the alleged phenomena." P. 614.

On the 26th of April, the case was closely watched by the author and Dr. Hodgkin, and with the same result as on the 31st of March. On the 4th of May, the patient vomited two large basins-full of fluid, containing an immense quantity of black matter, which subsided to the bottom of the vessels. This black matter, when examined under the microscope, as well as by analysis, was found to be identical with the black matter taken from

the face. The black matter continued up to the 23rd of May, when it entirely ceased. Neither internal nor external treatment had the smallest effect in checking the secretion. Dr. Rees found carbon to be the coloring principle.

Mr. Teevan states that, he believes there is no case on record similar to the present one, and he considers the secretion to be analogous to what occurs in melanosis. The cessation of the secretion of the black matter by the cutaneous exhalants of the forehead during the period it was ejected from the stomach, bowels and kidneys, although singular, is not unaccountable; the latter organs probably becoming a substitute for the former. The secretion was always more abundant during the night than the day.

¶ From the unusual character of the above case, and the doubts entertained by some persons as to its genuiness, Dr. Cursham was desired by the Council of the Society to ascertain further particulars from Dr. Read of Belfast, who saw the case at its commencement, and also from Dr. Hodgkin. Both these gentlemen express themselves perfectly satisfied of the genuineness of the case. The Council were certainly right in instituting these inquiries, for the deceptions practised by young women, evince so much cunning and are so singular that, without strong and respectable testimony, the profession would probably have received the report of this case with doubt, and have questioned the propriety of one so suspicious being published in the Transactions.

I. THE MODERN TREATMENT OF SYPHILITIC DISEASES, BOTH PRIMARY AND SECONDARY: comprising numerous Formulæ for the Preparation and Mode of Administration of the New Remedies; and an account of a safe and successful Mode of Treating Chronic, Protracted, and Constitutional Syphilis, by the Mercurial Vapour Bath. By *Langston Parker*, Surgeon to the Queen's Hospital, Birmingham, &c. Second Edition, 12mo. pp. 228. London, Churchill, 1845.

II. LETTRE SUR LA SYPHILIS. Par *S. Ratier*. 8vo. pp. 68. Paris, 1845.

A Letter on Syphilis. By *S. Ratier*.

WE rather fully reviewed the former edition of Mr. Parker's work in our January number of 1840. The author remarks, in his Preface, that six years' additional experience, both in hospital and private practice, has enabled him to confirm the efficacy of most of the plans of treatment recommended in the first edition of this work. Much new matter has been added in the present edition. *That which he regards of the first importance is the account of the treatment of various forms of syphilis by the mercurial vapour-bath.* Diseases rebellious or tedious under ordinary treatments, generally yield with ease to this combination; more particularly affections of the skin and bones; the duration of treatment by it is

mush shortened, the quantity of medicine required to be given by the mouth greatly diminished, and the cures rendered more permanent and certain. Relapses after this mode of treatment Mr. Parker has found extremely rare; whereas, under the ordinary plan, they are exceedingly frequent, even after a perfect cure had been supposed to have been effected. In the Chapter on Mercurial Fumigations, he states, the method employed by Werneck, in Germany, appears to him the simplest and most efficacious, and is that which he has recourse to. The mode is thus described:—

"The patient is prepared for the fumigations by low diet, the warm bath used daily, aperients, and the compound decoction of sarsaparilla. This preparatory treatment is pursued for five or six days prior to the fumigation, and the patient is confined to his room, which should be kept moderately warm. At the end of this period a sharp aperient should be exhibited, and the fumigation may be then employed. The patient is placed upon a seat, covered with a mantle of waxed or oiled cloth; the apparatus, which consists merely of a spirit lamp and a china plate, upon which the cinnabar or bisulphuret of mercury is laid, put under it. The mantle should be fixed closely round the neck, to prevent the mercurial vapours escaping into the room.

"The fumigation is continued for a quarter of an hour, in a warm chamber, and, at its conclusion, the patient is directed to go to bed; it is for this reason that the remedy is most conveniently employed in the evening. The quantity of cinnabar necessary for each fumigation is from twenty grains to a drachm; one application a day is sufficient, and the cure is generally complete in eighteen or twenty days; in case of salivation occurring, or any circumstances affecting the constitution of the patient, the fumigations must be used less frequently, the quantity of the mercury diminished, or the remedy altogether discontinued. When the treatment is terminated, the patient is to change his linen and take a bath." P. 197.

The reader, after perusing the above description, will be at a loss to perceive any novelty justifying the promise in the Preface which we have given in Italics. We had really supposed that Mr. Parker had quite forgotten new matter which was of the first importance, until, on arriving at the last page but one in his work, we found the following passage:—

"I have adopted, however, a method somewhat different to any I have hitherto seen used; it consists in the application of mercurial vapour in a moist state to the surface of the skin, combining, in fact, the mercurial fume with the ordinary vapour-bath. I have made a number of experiments on this combination, and found it succeed in a variety of cases, where ordinary mercurial fumigation, or the vapour-bath, employed separately, had failed." P. 220.

The author states that he could bring forward many cases as evidence of the efficacy of the baths. In one, the patient had undergone a regular mercurial treatment for a primary sore, followed by an excavated ulcer of the tonsil, and a scaly eruption; he was profusely salivated, and kept the house for a month. Two months after he supposed himself cured, he became again covered with a similar eruption, which entirely and permanently disappeared under the use of baths and very minute doses of the bichloride of mercury with guaiacum. No account is given of the period during which the baths were used.

In a second case, a gentleman of large fortune,† had an indurated cica-

† What this gentleman's "large fortune" had to do with his indurated chancre

rix of six months' standing (a symptom confessedly difficult to remove) with an excavated ulcer of one tonsil, of several weeks' standing; he had been taking, under an eminent surgeon, five grains of calomel, and as much blue pill, night and morning, for three weeks, without the slightest influence upon the disease, which entirely disappeared under three weeks' treatment by the baths, and nightly inunctions of a very small quantity of mercurial ointment. This patient was not confined during the treatment. That a syphilitic induration of six months' standing, entirely disappeared under three weeks' treatment by the baths and nightly inunctions, we wholly disbelieve; at any rate, we should attribute a good deal to the influence which had already been produced on the system by the previous three weeks' course of calomel and blue pill. The particulars of these cases are meagre enough, and they are far from convincing us of the great benefit of this mode of treatment. Certainly those who, after reading the Preface to this edition of the work, may naturally expect to find a satisfactory account of the treatment of syphilis by the mercurial vapour-bath, will be disappointed, and if any should purchase the book on the faith of this promise, they will not be pleased to read the announcement on another page, that the author is preparing for publication another work illustrative of the efficacy of this plan of treatment.

The objection to mercurial fumigations made long ago by Mr. Pearson, that it was difficult by this means to regulate the action of the mercury, is the opinion entertained by the best practical surgeons of the present day; and we believe that the objection equally applies to the mercurial vapour-bath, and it must prevent this remedy becoming so generally applicable as Mr. Parker's favourable report would seem to indicate.

We cannot perceive that this work contains much new matter. It is, as we remarked in our previous review, mainly a compilation from French writers, with the addition of cases occurring in the author's own practice.

II. M. Ratier, from the year 1828, has paid great attention to the subject of Syphilis, having been an assiduous observer in the wards of the late M. Cullérier, and a *collaborateur* of that eminent practitioner, in the articles contributed by him on the subject to the *Dictionnaire de Médecine et de Chirurgie Pratiques*. He has diligently perused the works of all his predecessors, and now puts forth his own views, in the modest *brochure* before us. We feel pleasure in laying the conclusions the author has arrived at before our readers; not that we can by any means agree to their general correctness, but from our willingness to aid the more extensive enquiries upon the subject, which he contemplates making, and our entire sympathy with the censures he passes upon the charlatanism and polypharmacy with which practitioners are too often wont to invest the management of this disease.

According to M. Ratier, *chancre* is the sole primary symptom of syphilis, which, left to Nature, terminates with hygienic caries, within 40 days. It may be accompanied by various accidental phenomena, such as bubo,

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we cannot tell. When will authors cease to gratify their vanity by parading the titles and wealth of their patients. To say the least, it exhibits very bad taste.

vegetations, &c., which, however, are no essential features of the disease. This chancre may be cured without leaving any traces of its existence, or giving rise to any general infection of the system, although it might have been propagated had it been inoculated. *Constitutional syphilis* usually follows the chancre, although it sometimes appears simultaneously with it. It is improperly so named; for it is, properly speaking, only an affection of the *skin* and *mucous membranes*, to which M. R. gives the appellation of *papular syphilide* or *syphilitic papula*. This is so characteristic, that, if a few inches of the skin can be seen, the nature of the case may be pronounced upon. Its duration is indeterminate, it is susceptible of perfect cure, and is not contagious like primary syphilis. When neglected, it may lead to ulcerations of various parts wherein it is located, and thus give rise to various appearances which are unnecessarily subdivided into varieties of syphilis by authors. So little difficulty does he attach to the management of this disease, that the author declares he would much prefer being the subject of it than of the fracture of a bone.

In treating the disease, M. Ratier does not employ *mercury* for the *primary* sore, and therefore not necessarily at all. He says:—

"If I happened to contract syphilis, I should commence by cauterizing the pustule, so as to convert what might prove a virulent ulcer into a simple wound which would cicatrize in the ordinary space of time a simple sore requires. If I had not commenced the treatment sufficiently early, or the cauterization had not succeeded, I should abandon the ulcer to itself, taking care to abstract from it whatever could add an accessory inflammation to that which is essential to the disease, as also abstaining from all emollient and relaxing applications, which are as injurious in another way. I should confine myself to a moderate regimen, such as reasonable healthy persons adopt, and continue my ordinary occupations, awaiting the event in entire security. The only precaution I should take, would be to proportion the number of dressings to the amount of discharge, and to very carefully cleanse each of the ulcers and neighbouring surfaces, and to cover them with soft and dry lint, which easily absorbs the secreted fluids. By such means, many experiments have shewn me that the ulcers would become cicatrized by the end of *forty days*. I admit that, through neglect of the dressings, errors of regimen, or fatiguing exertions, swelling of the glands in the vicinity of the ulcers might occur. In this case I should rest, adopt an abstinent regimen, and, by redoubled care in dressing the primary sores, I should arrest absorption, and in a few days the swelling would dissipate. But suppose it to have been neglected and suppuration has occurred, I should let out the matter as soon as formed, applying leeches and emollients in the vicinity, and be especially careful in dressing the chancre, which last is a *sine quâ non*.

"During this time, or sooner or later after the chancre is cicatrized, but usually not longer after, a *papular eruption* may shew itself on various parts of the body. This phenomenon advertizes me of my true position, and, without being rendered uneasy by it, I at once commence the specific treatment by mercury, which is the most certain means of obtaining a prompt and durable cure. * * * * It is to be well understood, then, that I only have recourse to the mercurial treatment in constitutional syphilis, and never for a primary sore.

"What I have here stated hypothetically is my habitual practice. When the patient is cured completely of his chancre, I consider him free from ulterior accidents. If there are glandular swellings, I entertain a suspicion of his condition for five or six months, this being the longest period during which symptoms of general infection usually exhibit themselves. Lastly, after the complete disap-

pearance of the papular syphilide, whether this has taken place spontaneously, or resulted from the use of mercury, I consider the patient quite cured, and exempt from all future accidents, unless there has been a new inoculation.

The author severely criticizes the confused ideas which have prevailed in reference to the management of this disease, especially by mercury. "In the *Pharmacopée Universelle* of M. Jourdain there are at least 800 modes of administering mercury mentioned, each of which is better than any that has preceded it." Some eminent practitioners entirely neglect local treatment. Some think a very mild course of mercury is only required, others a complete one, and others, again, that the disease can never be eradicated. Silver, gold, iodine, tartar-emetic, and a variety of other substances, have been proposed as substitutes for mercury—so that, amid so many novelties, we may sometimes exclaim in the words of Boyer, "Let us make and use this remedy while it will still cure the affection." As already observed, he much objects to dressing the chancre with mercurial ointments, &c., which, in fact, only increase the loss of substance; as also with emollients which, by diluting the morbid secretions, diffuse them over a larger space, and render them more susceptible by absorption. Stimulant applications may prove beneficial by changing the mode of action of parts, and by diminishing absorption by the irritation they produce. This explains the success which often follows treating chancre by superficial applications of *nitrate of silver*, renewing these as often as the eschar falls off. The practice of *inoculation* he considers as highly reprehensible, in multiplying the chances of general infection, and as nowise necessary for determining the treatment to be followed. Of all the preparations of *mercury* in the cases where it is required, he prefers the *deutochloride*. Although after a few days the papules will have ceased to appear and have become diminished in size, two months will be required to entirely get rid of them. Administered by careful hands, mercury is entirely exempt from the evils so commonly attributed to it. It is hurtful, however, when continued for long after the symptoms requiring it have disappeared. The abuse of mercurials heretofore gave reputation to the *sudorifics*, (which however do not cause sweating here,) which prove useful rather from the suspension of the mercury, and the attention to regimen, than from any efficacy of their own. As to *gold* and *iodine*, they have not cured primary chancre, but have only allowed it to cure itself; and in constitutional syphilis they have either succeeded after the excessive employment of mercury, or have been used in *pseudo-syphilitic* cases, mistaken for syphilis. For the local treatment of the eruption in constitutional syphilis and ulcerations, &c., it may give rise to—

"The best means I have found to be superficial *cauterization with the nitrate of silver*. It covers the parts with an immovable protecting layer, and is far easier of application than any form of dressing. It must be renewed wherever the eschar falls off. No one would believe the beneficial effects it produces on the red, inflamed, and suppurating parts to which, according to the usual plan, we should apply emollients. But, however useful an adjuvatory means this may prove, it does not suffice for cure, it does not prevent the occurrence of new papules; and, in order to lose no time, we should at once have recourse to mercurial treatment, which, if it be not the only means of cure, is at least the one that effects its object soonest and most certainly. I need enter into no

details as to the employment of the cauterization, but may just repeat what have elsewhere stated of its great utility in syphilitic *onychia*—a simple, painless treatment, capable of substitution for the barbarous practice of tearing off the nail.

"Vegetations, excrescences, buboes, and the indurated ulcers which succeed to them, the various cutaneous affections, exostoses, and the periosteal pains, which coincide with primary or constitutional syphilis, are not of the same nature, although often cured during its treatment. More frequently they persist, in spite of the disappearance of the characteristic symptoms of the disease, and then they should be attacked separately and locally. To renew the mercurial treatment, over and over again, as was the fashion sometimes since, is a foolish and dangerous practice."

In his dislike of the present complicated and uncertain views respecting the nature and treatment of syphilis, M. Ratier seems to us to invest these with a greater degree of simplicity than our present knowledge justifies our attaching to them. The indefinite multiplication of species and varieties is bad, but surely we are not in a condition to admit that the whole evidence of the disease is comprised in a primary sore and a papular eruption. That there may be general infection without any such eruption manifesting itself, we can have no doubt; and the recommendation to withhold mercury until such appears, seems to us a very dangerous one, incurring as it does the loss of much valuable time, and the running needless risk. That sores *can* be healed without mercury has been proved times out of number, but the withholding it at the commencement of the disease, to administer it only upon this cutaneous affection appearing, is very questionable practice. Then, again, we are by no means disposed to agree with the author in the low estimate he forms of Iodine and its various invaluable preparations. However, M. Ratier is a man of large experience, writes in a candid spirit, and seeks for criticism friendly or adverse, expressing his willingness to explain more fully whatever may appear obscure in, or inconsistent with his doctrine.

I. RECHERCHES DE PATHOLOGIE COMPARÉE. Par *Ch. F. Heusinger*. 4to, pp. 700. Cassel, 1844.

II. THE VETERINARIAN, from January to December, 1845.

THE work of M. Heusinger is one of extraordinary merit, from the vast amount of curious literary and scientific information which it contains. The subject, or rather subjects, of which it treats, although not immediately appertaining to human medicine, ought assuredly not to be entirely overlooked by the professional reader. Many of our ablest medical writers have not deemed the study of Zootic diseases unworthy of their notice. As far back as the 16th century, we find that a work was published by Ingrassias at Venice, entitled *Veterinaria medicina formaliter una eademque cum nobiliori hominis medicina, materiæ duntaxat nobilitate differens.* Towards the close of last century, Franck published an excellent essay *de morbis pecudum a medentibus nequaquam prætervidendis;* and,

during the first ten years of the present one, several works were brought out in France upon this very interesting branch of pathological research. More recently, we have the distinguished names of Rayer and Andral to point to as authorities for its importance. The former, amid the multiplicity of his engagements, has found time to start a journal upon the very subject of comparative medicine; and the latter has been of late extending, we are glad to find, his valuable researches, on the morbid conditions of the blood in different diseases, from man to the lower animals. It must be quite unnecessary to say more in the way of apology or recommendation; if we required any argument, we have only to utter the simple name of Vaccination; *that* will carry more weight and conviction than the most elaborate reasoning, or a host of the most distinguished authorities.

"The physical life of man," M. Heusinger remarks, "having the same conditions, and exhibiting the same general phenomena as that of animals, must also present the same resemblance in the state of disease. We may, therefore, very properly ask, what influence has the medicine of animals upon that of man? and what influence ought it to have?" It may not be possible to determine the exact amount of such influence; but this at least may be very reasonably asserted, that the study of the diseases of animals—more especially those of a contagious, and of an endemic and epidemic, perhaps we should rather say enzootic and epizootic nature—promises to reflect considerable light upon some important points not *only* in human pathology, but also in general hygiene.

Our author's work contains a variety of elaborate essays, or treatises upon different subjects connected with Comparative Pathology. The first of these is a history of Veterinary medicine from the earliest times down to the present day. The fine scholarship, as well as the unwearied research, displayed in this paper, cannot but interest the reader.—The second is entitled a "Comparison of the diseases described by the ancient writers on veterinary medicine, and by those of the middle ages." The medical antiquary, more especially, will find much to engage his attention here.—The third, is an "Historical view of the doctrine of the diseases of Birds."—The fourth, is called a "Sketch of a comparative Nosography of man and of domestic animals." The object of this most valuable and erudite treatise is to prove that very nearly the same diseases occur in veterinary as in human medicine; and, therefore, that the study of the one is calculated to throw much light upon that of the other. The amount of professional information exhibited upon this interesting subject is immense.—The fifth, and last, is entitled "Diplomatic Chronology of Epizootic Diseases." This chronological history commences with Homer's celebrated description of the plague among both man and beast, which Apollo sent into the Grecian camp at the siege of Troy, and is carried down, step by step, through classic times to the Christain Æra, and thence through succeeding centuries to the wide-spread and destructive aphthongular Epizootic which prevailed throughout Europe from the year 1838 to 1845. It is called "diplomatic," from the circumstance that it describes, *pari passu*, the epidemics that existed cotemporaneously with the Epizootics whose histories are related. It is altogether a wonderful performance. We had hoped to have been able to give a brief review of it; but we are unwilling to occupy too much space with matters which may be considered as merely accessory, and of

only secondary professional importance. We shall, therefore, in the present number, confine our notice entirely to an analysis, imperfect, indeed, of the fourth paper—the Comparative Nosography of Man and Animals.

The subject is more immediately interesting, and is calculated to excite the attention of medical men generally, and especially of those who reside in the country, or from their connection with our army, may be called upon to visit foreign lands.

We begin our notice with the

DISEASES OF THE DIGESTIVE APPARATUS.

*Stomatitis Aphthosa**—characterised by the eruption of aphthæ, degenerating into ulcers, in the cavity of the mouth, and accompanied with fever—is of common occurrence in all our domestic animals, more especially among the ruminants. It appears to be contagious in certain Epizootics. Sometimes it attacks only one tribe of animals; at other times, scarcely any is exempt. Not unfrequently the human species, in infancy and childhood more especially, is affected at the same time. Occasionally it has been observed among poultry.

A gangrenous form of Stomatitis, affecting more particularly the tongue, sometimes prevails among domesticated animals, especially pigs. It has been described under the names of "cancro-volante," "glosso-anthrax," "la soie," (in the case of pigs,) &c. The disease in birds, which has been called Anthrax of the throat, appears to be similar to gangrenous or putrid Angina in man; and some of the Epizootics of *chancre volant* in cattle seem to have been of the same nature.

There is a disease, which consists in a prolongation of the mucous follicles of the cheeks and tongue, and described by the Italian and French writers under the names "barbole" and "barbillous," that is met with in horses and oxen. We are not acquainted with anything exactly similar to it having been observed in man; although the tongue itself, or its papillæ, are sometimes very considerably hypertrophied. The papillary hypertrophe seems to be that disease which the German people call "Zungenwurmer." All the forms of *Angina* have been observed in the lower animals; but we want exact information as to the comparative liability of different tribes of animals to the disease.

Warts on the tongue are very rarely met with in the human subject; but they are common in the horse, and still more so in the dog, in consequence of the greater development of the epithelium.

The first and second *Dentitions* are dangerous periods for animals as well as for mankind. If we are to believe Shaw, the traveller in Barbary, not a few young lions die from this cause. Certain it is that the greater

* The genuine *stomatitis pultacea* vel *pseudo-membranacea*—the *muguet* of French writers—characterised by the formation of membranous exsudations on the surface of the cavity of the mouth, has not been observed in any of the lower animals.

number of orang-outangs die off in captivity, during the period of dentition. Many of our domestic animals, horses and dogs for example, suffer a great deal at this period.

Parotitis, or inflammation of the parotid glands, is not unfrequently an epizootic, as well as an epidemic, disease.

Salivary lithiasis, or the formation of calculi in the salivary ducts, is more common in some of the lower animals than in man.

Vomiting may be regarded as a natural or physiological act in the dog and sow. When inconvenienced by any food that has been swallowed, these animals are in the habit of rejecting, and again swallowing it. In ruminants, on the other hand, the occurrence of vomiting always indicates some grave disease of the stomach; in the horse it is very generally a mortal symptom.

M. Heusinger remarks, in reference to *Dyspepsia* in animals, that "inaction of the first stomach is often observed in ruminants, and that the benefit derived from the internal use of muriatic acid is very striking."

Pneumatosis or excessive *Tympanitis* of the paunch, from the immoderate use of young succulent herbs, is a common, and often very dangerous, disease in cows and sheep. Besides carbonic acid, hydrogen and carburetted hydrogen are sometimes formed in immense quantity within the cavity of the stomach.

The *rosio vaccarum*, or the tendency to lick everything—especially saline, calcareous, or earthy substances,—is always the sign of a cachexia, and may be compared to the *pica* in chlorotic girls.

Gastritis occurs frequently in all our domestic animals; but its various forms have not hitherto been well distinguished by veterinary writers. Mucous gastritis is common and very dangerous among dogs. A dangerous form of mucous gastro-enteritis is often met with in horses, and especially in ruminants, after they have been feeding in forests. Inflammation of the serous coat of the stomach is apt to occur in these animals, after chills.

Perforations of the stomach by ulcers and mortification are not unfrequently found in dogs and horses; but we are not aware that any appearance exactly similar to the *gastro-malacia* or gelatiniform softening, that is apt to occur in young children, has been ever observed; although solution of the stomach after death is frequently noticed in rabbits and other animals.

Lithiasis gastrica.—In the human subject, biliary concretions have sometimes, though very rarely, been discovered in the stomach. As to gastric calculi of any other sort, we have no satisfactory evidence that such have ever been found. In the stomach of the dog, however, and still more frequently in that of the horse, large calculi have been often met

with. Their mode of formation is not quite understood. They usually contain a little silica. In the case of ruminants, they seem to be formed by a mass of hairs, agglutinated together.

Entozoary worms have often been observed in the stomach of domestic animals. The Spiroptera sanguinolenta and the Strongylus trigonocephalus have been found in the dog; the Spiroptera megastoma in the horse; the Strongylus contortus in the sheep; the Spiroptera strongylina in the sow; and the amphistoma conicum in cows and sheep. Helminthiasis is more frequent in all domestic animals than in the human species; and the number of worms present is sometimes enormous. Muyschel has recorded a case of complete and fatal obstruction of the intestinal canal in the horse by a mass of lumbrici. Different species of the Ascaris, Tænia, Strongylus, Echinorhyncus, Distoma, Botriocephalus, Oxyuris and Trichocephalus, are met with in the horse, cow, sheep, sow, dog and cat. Some of these worms in the lower animals are more dangerous to life than those found in man.

Enteritis is a common disease among animals. In them, it is more frequently combined with genuine gastritis than in man. Veterinary writers have not discriminated with sufficient skill the mucous from the serous form of the disease. Much depends, unquestionably, upon the condition of the atmosphere, the action of the climate, and so forth. In low wet countries, there is an epizootic, as well as an epidemic, tendency to morbid affections of the mucous surface of the stomach and bowels. MM. Delafond and Bouley have recently published, in the Recueil de Méd. Vet., t. xix., some interesting observations upon a form of enteritis, which they call "e. couenneuse."

Lithiasis intestinalis is of much more frequent occurrence in animals, more particularly the herbivorous, than in man. We distinguish the so-called "ægagropiles," formed by hairs agglomerated together, and incrusted or not, from the proper phosphatic calculi, the nucleus of which is usually formed by vegetable fibre, bran, or some other foreign substance. They sometimes attain so large a size as completely to obstruct the bowels and occasion death.*

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* The following description of Intestinal Concretions in Animals is taken from Simon's Chemistry.

"They are by no means rare either in the carnivora or herbivora; they seem to be especially common in horses. They consist principally of the most insoluble salts that occur in the food, which, instead of being uniformly distributed throughout the whole of the chyle, are collected at particular points, or else, after having been dissolved in the stomach, are precipitated in the small intestines by the free alkali of the bile, and settle around any nucleus they may meet with. The principal constituents of intestinal concretions are phosphate of lime, phosphate of magnesia, ammoniaco-magnesian phosphate, and occasionally the carbonates of lime and magnesia. Gurlt remarks that the reddish grey concretions found in the stomachs of horses sometimes attain a very considerable size: (he mentions a case in which a concretion weighed 14 pounds;) they consist of concentric laminæ, and are very hard. In horses they have occasionally a bluish-gray tint."

Diarrhœa is quite as common in young animals while teething, as in children during the same period.

Dysentery sometimes prevails, more especially in warm climates, as an Epizootic and Enzootic, as well as an Epidemic and Endemic, malady; it is often very destructive to the brute creation.

Torsion, or twisting *of the gut* is much more frequent in the horse than in the human being. In the latter, it almost always takes place in the flexure of the colon: in the former, it is usually in the free part of the colon or in the cæcum itself. The attack is generally fatal. It has been proposed to cut into the cavity of the abdomen, and unravel the twisted fold of intestine; but we are not aware whether the operation has been ever performed.

Rupture of the intestine is a not very unfrequent accident in cows and horses, being generally the result of obstinate constipation, the presence of calculi, or of a twisting of the tube. The lodgment of the fæces is, on the whole, more frequent, and is also apt to become a more serious affection, in some of our domestic animals than in the case of man.

Most of our domestic animals are liable to *prolapsus ani*; and even *fistula* in this part is not very rare among dogs and horses. Worms are much more frequently present in the large intestines in animals than in the human being. In the cavity of the abdomen too, hydatidic formations —especially Cysticerci and Echinococci—are more common.

Various species of *Hernia* are met with in the lower animals. Congenital umbilical hernia is almost as common among them as in man: it is most frequent in the pig. Although the inguinal canal remains permanently open in animals, hernia at this point is of exceedingly rare occurrence. The ventral species is much more frequent. Diaphragmatic hernia is common, especially in the horse: in many instances, probably, it is of congenital occurrence.

Different morbid affections of the Spleen appear to be far from uncommon among animals; more especially in hot and marshy climates. Indeed, wherever they are endemic, they are apt to be enzootic. This viscus is often found to be enormously distended with blood; at other times it is decidedly inflamed, or hypertrophied, or softened and reduced to a pulpy consistence, or occupied with tuberculous deposits or hydatidic formations. Occasionally it becomes ruptured. What we have said respecting the Spleen, is equally applicable to the Liver. There is a peculiar form of Acute Hepatitis, inducing excessive softening of the hepatic parenchyma, which often proves very fatal to sheep (hepatite typheuse, putride, leber-typhus.) Hydatids and other entozoa are, it is well known, exceedingly common in these animals. The presence of "flukes" in the biliferous tubes very often gives rise to inflammation; and the result of the inflammatory action, especially in the goat, is often a remarkable sort of ossification. *Icterus* has been frequently noticed in the dog, swine, and sheep: it is rare in the horse.

Cholo-lithiasis, or the presence of Biliary Calculi, is much less common,

(although far from being rare) in the lower animals than in man. Their nature and composition too seem to be of a different character.* Those that are found in the ox, have often a metallic lustre on their surface. The famous "pietra di porco" of India is a biliary calculus of the Erinaceus malacensis; and probably the bezoars of the East are often nothing but the gall-stones of some herbivorous animal.

Diseases of the Respiratory Organs.

Catarrhal Affections.—There is often a striking resemblance between these in animals and in human beings. What is more particularly worthy of notice is, that in each species of animal, the malady exhibits some peculiar or specific character. Thus in the catarrh of the *horse*, the lymphatic glands usually swell very quickly, and a scrofulous condition (état gourmeux) is developed, which is apt to pass into a glanderous cachexy. In young persons, in whom there is a decided scrofulous or phthisical constitution, we have often occasion to observe that catarrh is apt to occasion swellings of the lymphatic glands, not unlike the gourme of the horse.

The catarrh of the *cow* passes quickly into an ulcerated and gangrenous state, which is usually highly dangerous.

In the *sheep*, the disease is apt to put on a cachectic, or even a putrid character, constituting what has been called the "rot" in these animals. In the *dog*, it often assumes a nervous and ataxic character: this state is called by the Germans "hundestaupe."

All catarrhal diseases exhibit a marked tendency to become contagious, and to pass from one species of animal to another. They often prevail epizootically, especially among horses, when there is an epidemic of influenza among human beings. The verminous and pituitous condition of the lungs† in lambs, calves, and pigs, often exhibits a striking analogy with the verminous and pituitous state of the bowels in children. These diseases attack the same age, are endemic and enzootic in the same countries (Holland, in the neighbourhood of Goettingen, &c.,) and prevail epidemically and epizootically in the same seasons.

Enlargement of the Thyroid Gland, though not so common as in man, is far from being unfrequent in some animals—in the dog, for example. It is enzootic in those countries where it is endemic among the inhabitants.

Cutaneous Diseases.

M. Heusinger remarks that the great differences between the human skin and that of animals must cause very considerable differences in their

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* The biliary concretions of cattle differ considerably from those of man; they consist, for the most part, of biliary pigment and resin, with a little cholesterin.—*Simon's Animal Chemistry.*

† *Helminthiasis* of the air-passages has never been met with in the human subject, although it is of common occurrence in brutes: it is, as might be imagined, a very dangerous affection. Young animals appear to be most liable to it.

morbid affections. The freedom and mobility of the skin in animals, the development of the cutaneous muscle, the abundance of the cellular tissue, and the amplitude of the lymphatic system under the skin, will account for some of these differences. "It may be necessary indeed, considering these points of diversity, to designate certain cutaneous diseases in animals by peculiar names, differing from those used in human dermatology; but we trust that, whenever it is possible, the same terms will be used for analogous and corresponding morbid phenomena. He, who undertakes to describe the cutaneous diseases of animals, should well understand those of the human subject,—which has not hitherto been the case with veterinary writers,—and he, who shall faithfully pourtray the development and metamorphoses of any one disease, will deserve better of science than he who devises a dozen of new appellations."

Erysipelas is a not unfrequent epizootic and contagious disease among all our domestic animals. Its various species—*læve*, *vesiculosum*, *bullosum*, *pustulosum*, and *gangrenosum*—occur in them as in man. It is much more common in sheep and pigs, than in horses and dogs.

Morbilli occurs as a contagious, and often very dangerous disease in sheep, and also in pigs; and cases have been recorded where the disease seemed to be communicated from the human subject to the lower animals. *Scarlatina* also is recognised as a disease that has been observed in dogs, horses, and swine.—*Urticaria* is of frequent occurrence in almost all our domesticated animals.

Of papular eruptions, Prurigo is well known to be a very common Zootic disease; but its general and local forms have not yet been clearly distinguished.

Scabies occurs in all our domestic animals; and, in all, the scabious insect has been discovered to exist. Hertwig has proved by numerous observations the transmission of the disease, not only from one animal to another, but also from an animal to the human being. The facility of transmission, however, appears to be the greatest between animals of the same species.

Various forms of Ecthymatous, Impetiginous, and Porriginous eruptions are observed in most animals. Hitherto their true nature has not been ascertained with any degree of precision. Indeed, the whole subject of Cutaneous pathology, human as well as comparative, requires revision; there is so much confusion occasioned by applying the same terms to very different diseases. Greve has described under the appellation of *porrigo decalvans*, a disease in horses similar to that observed in man; Haubener has very improperly designated it *herpes decalvans*.

Variola.—Our author regards the various forms of this Exanthem, from the simplest vesicular Varicella to the genuine and true Small-pox, as merely so many modifications, or transitory conditions, of the same disease. The variolous affections of the lower animals were quite unknown to the Greek and Roman writers; and, even for some centuries after the disease in man had been widely diffused through Europe, they seem to have

escaped notice. In Asia, however, where the human disease has been for ages known, they have been long recognised and understood. Even in Mexico, according to the testimony of Humboldt, the natives were quite aware that the variolous affections of brutes were transmissible to mankind, and had the effect, when so communicated, of protecting the individuals against the small-pox.

M. Heusinger is of opinion that the following conclusions are fairly warranted by historical evidence. 1. That the small-pox did not originate in brutes, but that it has been communicated to them from man. 2. That the variola is transmissible from one species of animal to another, from man to the brutes, and from them to him. 3. The more fully that the disease is developed, the more completely is the affected individual, whether human or brute, protected from a second infection; and *vice versâ*. The best writers on the effects of inoculating different animals with the variolous poison are Sacco, Numan, and Ceeley. It is strange that so recent an author as M. Dupuy, should have adopted the old error of seeing nothing but a Variolous disease in all Epizootics.*

The different modifications of variolous eruption, as observed in different species of animals, may be enumerated thus:—1. *Variolæ ovillæ, schafpocken, la picote, le claveau, la clavelée.* When fully developed, it is very like the genuine small-pox eruption in man; but in sheep, as in the human species, there are various degrees or forms of the disease. Godine and others have infected sheep by inoculating them with human virus; and Sacco asserts that he has transplanted the disease called *la clavelée* upon man, and succeeded in thus producing a genuine protective vaccination.—2. *Variola Caprina.* Valentin and Numan have satisfactorily shown that the vaccine virus is readily communicable to goats; we may, therefore, presume that these animals often suffer from the variolous poison. —3. *Variola Canina.* It is a tolerably frequent epizootic among dogs, and resembles a good deal the disease as it is seen in sheep. Cases are recorded where the dog has been infected from the human being, as well as from sheep labouring under the *clavelée.*—4. *Variola Suilla.* The disease has been long known among swine; and it has often been observed to prevail among these animals at the same time that there was an epidemic of small-pox, and an epizootic of the *claveau* among sheep. Viborg alludes to the successful inoculation of swine with human variolous matter.—5. *Variola Vaccina* was known anciently in Asia, and for a great length of time in Southern America, as well as in various districts of Europe: to medical men generally, only since the commencement of the present century. Some writers are of opinion that an epizootic of Vaccinia may become developed in the cow primarily; i. e., independently of external contagion. But it may be fairly remarked, in reference to this point, that the sources of contagion are often exceedingly obscure; the history of the malady, and the various experiments upon the subject of inoculation in different animals, would rather lead us to believe that the vaccine disease is in truth the human small-pox transmitted to the

* Traité sur les Maladies Epizootiques. Paris, 1837.

cow, either directly or indirectly, through the medium of sheep, dogs, horses, &c.

From the remotest period, it has been well known in Asia that the cow-pox often infected human beings, and that individuals so infected were exempt from small-pox; indeed, this fact had been repeatedly observed in the different countries of Europe for a full century before Jenner directed public attention to the important circumstance. The vaccine virus has been transmitted to all other domestic animals, and has been found to protect them, as well as man, from their variolæ.—6. *Variola Equina.* The virus of vaccinia, and also of human variola, has been inoculated upon the horse; and the disease, so produced, when transplanted upon other animals or upon man, has exhibited all the characteristics of genuine vaccinia. Jenner maintained that the cow-pox was communicated to cows by horses affected with the disease called "grease." This opinion was, ere long, shown to be far too exclusive; many experimental inoculations failed entirely; and subsequent observations have proved both the spontaneous transmission, and the possibility of the inoculation of the grease upon man, and the lower animals; and that the disease, so induced, was altogether like cow-pox. We may, therefore, fairly assert that there is really and truly a *variola equina* occurring in the feet of horses; although unquestionably more diseases than one have been comprehended under the appellation of the "grease," "eaux aux jambes," "mauke," (German.)

Before dismissing the subject of Variola, we may mention that it has been long known in the East that the Camel is liable to be affected with an eruption like Cow-pox, and that it is communicable to mankind.*

Pustula Maligna, Anthrax Epizooticus, Milzbrand, &c., is perhaps the most general disease of all that occur among animals. Not only our domestic animals, but even the wild animals of the forest, are liable to be affected with it. Sometimes it occurs sporadically; at other times it prevails as an enzootic or epizootic malady: it is eminently contagious. * * * * If the disease, remarks our author, arises spontaneously in the horse, cow, sheep, or sow, more especially if it assume an acute form, there is often no formation of pustules or carbuncles; in other cases, indeed, these local phenomena manifest themselves very soon after the commencement of the constitutional malady. When, however, the disease arises from the immediate contact of the blood of an infected animal, it always commences in the local formation of a pustule or anthrax.

M. Heusinger tells us that the disease is enzootic in a valley of his country, and that the inhabitants of the district are unusually liable to carbuncular affections. The genuine *pustula maligna* very rarely arises spontaneously in the human being; it is almost always communicated from an infected animal. He has only seen two cases where the disease was of primary development in man; and in both cases, the persons affected

* Masson's Narrative of a Journey to Kelat.—Transactions of the Medical and Physical Society of Bombay, 1840. P. 214.

had been engaged in the soaking of flax (travail dans les routoirs de lin.) It is a curious circumstance that the few analogous cases, that have been recorded by other writers, have been attributed to a similar cause. The malignancy of the disease, when it occurs in man, appears to be in some measure dependent upon the species of animal from which the infection has been derived. When received from the horse it is always, from the cow it is often, very dangerous; whereas, when received from the sheep, it is generally slight, and sometimes only local. M. Heusinger has never known a case where the disease was communicated from one human being to another. There cannot be a reasonable doubt that the essential nature of the disease is still unknown; all that we can safely assert is, that there is induced a decomposition or morbid alteration of a peculiar character of the circulating fluids.

We cannot find space to notice, however briefly, various other cutaneous affections that are sufficiently common among the lower animals. We must also pass over the diseases of the hoofs; especially as it would be difficult to point out any close analogy with the morbid conditions of the corresponding parts in the human subject, in consequence of the marked difference in the organization. We may remark that many ungular diseases are apt to become contagious, more especially in horses and sheep.

Hygromata, or dropsical swellings of the *bursæ mucosæ*, are more common in the horse than in man: they are most frequently observed on the backs of those animals, which are made beasts of burden. In the camel, they sometimes acquire a very large size. The *Elephantiasis Arabum*—pes elephanti—is often met with in the horse.

We now pass on to notice some of the Diseases of the Urinary Organs.

Diabetes, or *Hydruria*.—This is a common complaint in horses. Hitherto no saccharine matter has ever been detected in the urine of these or of any of the inferior animals. In an epizootic diabetes which prevailed some time ago at Paris, M. Lassaigne discovered in the urine of many horses a notable quantity of free acetic acid*—a circumstance that is rather remarkable. In reference to this Epizootic, it also deserves to be noticed that it was almost exclusively among *entire* horses that the disease was observed to prevail; very few geldings, and not one mare, were affected, according to the observations of M. Moiroud. Now, in the human subject, *melituria* is very rarely met with among females, or before the age of puberty. Hydruria or diabetes insipidus, however, is more common in women than among men; and M. Greve asserts that the ordinary hydruria in horses is most frequent among geldings, and least so among stallions. The whole subject, however, requires to be examined with care, before we can attach much importance to any statements touching the relative frequency of the disease. *Albuminuria* has been observed in the horse by Messrs. Clayworth and Percivall. *Hæmaturia* is rare among

* The urine of horses, and indeed of herbivorous animals generally, in a state of health, has an alkaline re-action. Hence it quickly becomes ammoniacal, and emits a peculiar penetrating odour. After it has rested for a time, it is often so tenacious and viscid that it may be drawn up in long threads.

dogs; more frequent in horses and swine than in man; and still more so in cows and sheep; among these last-named animals, the disease is sometimes observed to be enzootic and epizootic. We must distinguish the hæmaturia arising from the irritation and inflammation of the kidneys, that is apt to be caused by the swallowing of certain insects and acrid vegetables, from the cachectic species of the malady that is connected with a dissolved state of the blood, or great debility of the renal structure. *Lithiasis*, or the formation of gravel or calculi in the kidneys and bladder, is of very frequent occurrence in our domestic animals. Generally speaking, the constituents are much the same as in man; except that no uric acid occurs in the calculi of the herbivora, which consist, for the most part, of earthy phosphates and carbonates. The quantity of carbonate of lime is sometimes very large. Hitherto but little attention has been paid to this subject by veterinary surgeons, so that we are unable to say whether the disease be Enzootic in those districts where it may be said to be Endemic. In many of the rodentia, the presence of sedimentary matters in the urine seems to be almost natural; it is of such common occurrence.

There are none of the diseases of the sexual organs in the male animal that call for notice.

DISEASES OF THE UTERUS.

Puerperal Metritis (kalbefieber, milchfieber) is perhaps as common among the lower animals as among women: Oopharo-metritis is also the most frequent form of the disease: the affection of all the serous membranes, and especially of the pia mater, is a common complication. If, on the one hand, veterinary practitioners have not sufficiently distinguished all the forms of the malady—for example, uterine phlebitis—it must be admitted, on the other hand, that they have not allowed themselves to be so much led away by merely fanciful speculations, as some of the recent writers on puerperal fever in Germany have done.

Uterine Polypi are frequent in the mare and cow.—*Scirrhous and Cancerous degeneration* of the womb* has been seen in the cow and bitch.—*Prolapsus uteri* is often met with in our domestic animals; and rupture of this organ is not very unfrequent.

The *Mamma* or teat in animals is in them, as in women, not unfrequently the seat of scirrhous and carcinomatous disease. The alterations of the milk, in various morbid conditions, appear to be very much the same in both.†

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* Dr. Walshe, in his very elaborate work on Cancer just published, quotes from our author various data respecting the occurrence of this disease in the lower animals. In his enumeration of the different parts of the body in which it has been observed in the cow and bitch, Dr. W. has omitted (it must have been from mere inadvertence) to mention the *uterus*.

† M. Dumas has recently published some analysis of the milk of bitches, with the view of shewing that, after they have been kept for some time upon a

M. Heusinger remarks, that the treatment of milk-swellings (milch-knoten) is generally much better understood by veterinary surgeons than by practitioners in human medicine.

For want of space, we must pass over any mention of the diseases of the muscular and osseous systems; although there are many points, especially in reference to the latter, that might justly have claimed our attention. The frequency of *exostosis* in some animals, especially among poultry, and the not uncommon occurrence of *osteo-malacia* in others, as among the monkeys of our menageries, are curious circumstances.

CACHEXIÆ.

Unquestionably the cachectic diseases of the lower animals exhibit many points of marked difference from those that are observed in the human subject; but it is equally certain that not a few traits of resemblance—and this too of a practically important nature—may be easily discovered between them. The grand object alike of the human and veterinary practitioner ought to be to seek to find out their inducing causes, with the view of preventing and curing the vitiated condition of the fluids that is present. This may be a proper opportunity to mention that M. Andral, as well as some other French pathologists, have recently been examining the condition of the blood of animals when labouring under different diseases.

"From 27 analyses of the blood of 11 sheep affected with the watery cachexia or the rot, it would appear that the amount of fibrin is slightly affected, but that the blood-corpuscles are excessively diminished; from 78, their normal average, they fall to 40, 25, and even 14. The solid residue of the serum is diminished, (a point in which this disease differs from chlorosis in the human subject,) and the water is considerably increased.

"The deficiency in the amount of blood-corpuscles appeared to vary with the progressing weakness of the animal. By proper food, and due attention to atmospheric influences, the corpuscles were observed to increase; in one instance they rose from 49 to 64.

"From 14 analyses of the blood, in which this affection was associated with inflammatory disorders, it appeared that the fibrin increases, and the blood-corpuscles diminish, as in simple, uncomplicated inflammations."

These observations, we may remark, are derived from Dr. Day's translation of Simon's Animal Chemistry. We now proceed to notice very briefly some of the Cachectic diseases enumerated by our author.

The *cachexia agnosa vel hydropica*—characterised by impoverishment of the blood, atrophy of all the tissues, and accumulation of serum in the cellular tissue and sacs of the body—is common to all our domestic animals with man. It is often observed to be endemic and enzootic, epidemic and epizootic, occurring in the same districts, at the same periods, and under the same conditions.

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purely animal diet, all traces of sugar disappear from the milk.—*Annales des Sciences Nat.*, Sept. 1845.

Scrofula, too, is of very frequent occurrence among all animals, birds as well as mammals. It occurs under the same physical circumstances and influences, which are known to promote its development among human beings. It is most frequently enzootic; very often it is hereditary. Herbivorous animals are much more frequently affected with it than carnivorous.

The following instance will serve to illustrate very well the transition of different forms of scrofulous diseases, from one to the other.

A flock of 350 lambs was kept in a warm, ill-ventilated stable, and fed with over-rich and succulent food. In the course of a very short time, they were covered with blotches of a pustular eruption. When this was found out, the animals were injudiciously turned out into the fields, exposed to the cold air, and where the pasture was very poor. The almost immediate effects were that the cutaneous disease indeed disappeared; but in its place, a sort of catarrh, followed by a mesenteric atrophy, set in, and carried off a multitude of the animals.

Different forms of scrofulous disease are observed to be predominant in different tribes of the lower animals. Thus, in the horse, it is the pituitous membrane that is generally affected; in sheep, the spine, producing rhachitis; in the cow, the skin; and in the sow, the glandular tissue.

Authors are not yet agreed upon the somewhat important point, whether the common diseases of Glanders and Farcy are to be regarded as forms or varieties of Scrofulous cachexy or not. Without presuming to decide upon this question, we shall merely introduce a few descriptive remarks at present.

The *farcy* consists in a hypertrophy, dilatation, inflammation, and *ulceration* of the lymphatic vessels and glands of the skin; the tumours and ulcers, that are formed, resembling very closely the scrofulous tumours and ulcers which occur upon the skin in human beings. The disease is sometimes developed in adult animals under the same set of influences which are apt to induce scrofula in young ones; very frequently, however, it is the result of contagion. It is common in the horse; rare in the cow; and has never been observed in any other of our domestic animals. M. Renault thinks that he has shewn that the development of Farcy arises from absorption of pus by the lymphatic vessels; but his observations admit of another explanation. MM. Hamont and Prunner, who have had extensive opportunities in the East of observing the two endemic and enzootic diseases of Elephantiasis Græcorum or Lepra tuberculosa in man, and of Farcy in the horse, maintain that they are identical in their nature. That there are many points of resemblance between them, cannot be doubted; but the writings* of these authors unquestionably contain many most erroneous statements. The disease in man, which appears to come the nearest to the equine malady, is that which Autenreith has called "gonorrhœal scrofula" (tripper-scrofeln.)

Glanders (la morve, der rotz) is justly regarded by most observers as

* Journal de Médecine Vétérinaire Théor. et Prat. Vol. V., p. 193.

merely a form or variety of the Farcy. Its essential symptoms are—engorgement and induration of the lymphatic glands of the throat, a purulent discharge and specific ulcers (not unlike those of a syphilitic origin) of the nasal membrane; at length, erosion and destruction of all this membrane, and caries of the nasal bones: the animal dies phthisical, if he is not more quickly cut off by phthisis, general inflammation of the lymphatic vessels, or gangrene of the lungs. The disease is frequently complicated with genuine Farcy. It arises, primarily and spontaneously in equine animals alone; more frequently in the ass and mule than in the horse itself: for the malignant Catarrh of the cow and sheep, and the distemper of dogs, present many points of marked difference. The causes are the same as those of Farcy; the virus too of the one disease sometimes produces the other malady, and *vice versâ*.

In connexion with some of the preceding remarks on Glanders and Farcy, it is worthy of especial notice that, in all scrofulous constitutions, there is a marked tendency to one or more of the mucous membranes being the seat of suppuration and ulceration; the surface of the air-passages more particularly so. Doubtless, the greater number of scrofulous affections are not of a contagious nature. Some, however, occasionally seem to be so; for example, Blenorrhœa of the eyes and lungs. Perhaps, indeed, we may go a step further, and say that there is scarcely any malady that may not, under certain circumstances, acquire a contagious property.

"It is singular," M. Heusinger remarks, "that I have never seen an instance of Glanders in the human subject, although every year cases of poisoned inflammation of the skin, caused by the absorption of an animal virus and by that of the glanders itself, are presenting themselves to my notice. During the year 1817-18, fully one-third of the horses of our ambulance died of this disease. I dissected many of the animals, and I made numerous experiments upon them, without taking any particular precautions to protect myself against infection. Subsequently to this period, my observations of the disease in horses has been very extensive; yet, as I have said before, I have never witnessed a case of it in the human subject."*

Our author enumerates (with a good deal of propriety, in our opinion) among the Cachexia, a "c. arthritica" and a "c. rheumatica;" regarding the diseases of Gout and Rheumatism, as depending upon a morbid condition of the fluids.

Rheumatism.—Rheumatic affections are exceedingly common in all our domestic animals. The disease, which has been called *coriago*, *echedermia*, *harthautigkeit*, is a rheumatic affection of the cellular sheaths of the skin and panniculus carnosus. Articular rheumatism of the extremities, and of the vertebral column, is often the cause of exostosis and anchylosis.—Rheumatic pericarditis is probably much more common in the lower animals than is generally imagined.—Rheumatic *meningo-myelitis* is a disease that is more frequent and more fatal among animals than among human

* There is a series of valuable papers on Glanders and Farcy by Mr. Percivall, as well as occasional contributions by other writers, in the Veterinarian for 1845. M. Heusinger makes frequent reference to this valuable periodical.

beings: cows and oxen are those most frequently affected with it. This disease should be carefully distinguished from mere rheumatism of the spinal column. Dogs are very subject to rheumatism, especially of the spine, and to a permanent paralysis of the hinder extremities induced thereby.—Veterinary practitioners are not completely agreed among themselves whether genuine arthritis or gouty inflammation is ever met with in animals.

The existence of the proper *Scorbutic cachexy* among the lower animals has not hitherto been very clearly made out. There is good reason to suspect that it does occur; but the observations, which have been recorded, are not very satisfactory; and some of the maladies, which have been described under the appellation of scorbutic, were certainly of another character. Several of the French and German writers have confounded carbuncular with scorbutic affections. According to our author's experience, animals are liable to be affected with the "pourriture" in those seasons, when scurvy prevails among the inhabitants of the district.

Cachexia Syphilitica.—On this subject M. Heusinger declares that, from the most remote period, human beings were subject to contagious discharges, vegetations and ulcers of the sexual organs; that these were communicable by coitus, and often occasioned a general cachexia; that there were similar vegetations of the skin in warm climates, which indeed have not usually been regarded as of a syphilitic origin, but which are probably so nevertheless; and lastly that, about the close of the 15th century, under the concurrence of epidemic influences, the form of the disease now known became developed. It is well known to all observant practitioners that, even in the present day, epidemic agencies exert a marked influence upon the development of syphilitic maladies: in some years, they are exceeding common and very intractable; while, in others, they are mild and much less frequent. Again, in one season almost every patient is affected with gonorrhœa: in another, vegetations or ulcerations are the predominant affection.

All our domestic animals are subject to contagious discharges and ulcerations of the generative organs; they are transmissible by coitus, and exhibit a resemblance to syphilitic affections; although they certainly do not proceed from them, as some writers have imagined. They have been described under the names of Syphilis, Framboesia, &c. In my opinion, says M. Heusinger, they are nearly in the same condition as the syphilitic affections of man were before the close of the 15th century.

DISEASES OF THE NERVOUS SYSTEM.

Hydrencephalitis is a disease that is known in animals by the name of "acute vertigo." It is more frequent in the horse than in sheep or oxen. The chronic form of Hydrocephalus is of more frequent occurrence than the acute, especially in the horse. Cerebral *congestion* occurs very frequently in all our domestic animals. Cerebral hæmorrhage, although less common than in man, is not a very rare affection among them. Morbid affections of the Spinal Marrow are common in most of our tame animals. M. Bouley has written an admirable paper upon this branch of comparative pathology.—(*Recueil de Méd. Vétérinaire*, t. vi.)

Hydrorachis, or dropsy of the spinal-marrow, occurs much more frequently among many of the lower animals than in our own species. It is often congenital among lambs. An effusion of purulent matter within the spinal canal has been repeatedly found in horses. Inflammatory *ramollissement* too of the medulla is not an unfrequent affection.

Paralysis is a common disease among brutes. A singular epizootic malady of a paralytic nature is that which in Germany was called *sterzwurm* or *sterzseuche*, but which now appears to be scarcely known to veterinarians in the present day. It has been very improperly designated *epizootia Cancrosa* by Ampach, and regarded by him as being of a gangrenous nature. The gangrene of the tail, that takes place, is only a secondary, and not a primary or essential, symptom. From the descriptions that have been given of the disease, we may suppose that it was a (perhaps rheumatic) paralysis of the tail.—*Tetanus* is a disease that is singularly frequent in horses: it is of rare occurrence among other domestic animals. *Epilepsy* is most frequently observed among dogs, cats, and birds: *Chorea* also has been witnessed in dogs.

Rabies, as far as we know, always originates in the canine species, the dog, the fox, the wolf, or the jackall. Some writers, however, have been of opinion that it may originate in the cat. The disease is transmissible to all other quadrupeds, and even to birds. It is doubtful whether it is ever propagated by animals that have become infected, but in which it is not of original development. We possess no satisfactory evidence that it has ever been communicated from one human being to another.

In taking leave of M. Heusinger for the present (for it is possible that we may recur to his work, when it is completed,) we cannot but again express our admiration of his marvellous industry, great erudition, and extensive scientific acquirements. These Researches should be in every public library throughout the kingdom: they are a mine of curious and instructive information.

THE NATURE AND TREATMENT OF CANCER. By *W. H. Walshe*, M. D., Professor of Pathological Anatomy in University College, &c., &c. Octavo, pp. 590. London, Taylor and Walton. 1846.

THE present elaborate and very valuable work is founded upon the article Cancer, that was written by the author for the Cyclopædia of Surgery, and published in that Dictionary about five or six years ago. A short time previously, the translation of Müller's important treatise on Morbid Growths had made its appearance, so that we were thus enabled to review the two works together, and give the English reader a full and fair account of the then-existing state of knowledge of the anatomy and developmental history of cancerous formations. Since that period, the subject has not

again come under our particular notice; and we therefore gladly avail ourselves of the present opportunity of examining, at some length, the leading points in this most interesting, although (we grieve to say) still imperfectly-understood, theme of pathological investigation. It is one of the most painful circumstances to a man of considerate feelings, in the exercise of the medical profession, that there are certain diseases—and these too of by no means uncommon occurrence—which, from their very earliest detection, almost inevitably baffle every means for their cure, and, at a later period, often defy his best attempts at even temporary mitigation. Still he must not despond or despair; but, diligently making himself acquainted with all that has been done and may be doing in the way of scientific research, with the view of elucidating their nature, he must continue to cherish the hope that to some one, if not to him, may be reserved the proud satisfaction of at length discovering the means of arresting the growth, if not of preventing the early development, of a disease like Cancer. If such should ever be the case, we cannot believe that the discovery will ever be achieved by a chance thought or random guess; like that of Vaccination, it will rather be the glorious reward of patient observation, and of long and serious reflection.

With these remarks we invite the studious reader to follow us in our review of Dr. Walshe's work. It is divided into two parts, of nearly equal length. The first examines with great minuteness the entire subject of Cancer in general, embracing its anatomy, chemistry, physiology, pathology, and treatment; the second is devoted to a description of the disease as seen in different parts and structures of the body, viz., the organs of digestion, respiration, circulation, and generation, of the lymphatic, nervous, and osseous systems, of the organs of sense, of the thyroid and thymus glands, &c. Our analysis will be limited almost exclusively to the first part of the volume.

First, let us consider the *Nosological position of Cancer*. To form any right ideas upon this subject, it will be necessary to premise a few remarks on what are usually called "Adventitious Products." By this term we mean all those substances which, although developed within the living body, yet form no part of its healthy structure, and the composition of which differs, more or less decidedly, from its natural constituents. These products Dr. Walshe divides into two great classes, according as they consist of materials physiologically Inorganic, or physiologically Organic. In the first, he includes not only all saline matters in the form of crystals, pulverulent deposits, and concretions; but also certain proximate principles, which, though organic in a chemical point of view, are destitute of structure or organisation; as, for instance, oils, sugar, albumen. The second is made to comprehend all those that are said to be possessed of organisation. This class is a very large one; and, as it embraces very dissimilar objects, our author subdivides it into two families or subordinate classes, according as the new productions are, or are not, dependent "for existence on the immediate and direct access of nutritious matter from the blood of the parent organism." The former originate from a structureless fluid or *blastema*, and may therefore be called "Blastemal Productions;" the latter arise from a germ, and are therefore denominated "Germ-Formations or Parasites," being either of a vegetable or of an animal nature.

It is with the Blastemal Products that we have to do in considering the nosological position of Cancer; but, before we can yet determine this, we must make one or two further observations.

Blastemal Formations are essentially characterised by having a cell-structure. The nature and properties, however, of the cells, that are developed, differ very materially in different formations. 1. They may be utterly incapable of continued existence, or of generating any new cells previously to their own destruction. They therefore speedily become altered in their structure, and lose all traces of organisation, being either dissolved in the fluid matter around them, or disintegrated into an amorphous granular substance. Of this nature are Pus, Tubercle, and Colouring matter, as that of melanosis, &c. 2. The cells, primarily developed in the blastema, may be non-vegetating, but persistent; in other words, they are not capable of generating others like themselves, but they possess the power of forming tissue more or less closely resembling some of the natural tissues of the body. The new formations, thus produced, are called "Pseudo-tissues;" thus we have pseudo-cellular membrane, pseudo-fibrous, pseudo-osseous, &c., tissues. 3. The primary cells may have a distinctly vegetative faculty, generating others like themselves previously to their own destruction, and these again in their turn being endowed with a similar reproducing power. To the morbid formations so produced, Dr. Walshe proposes to restrict the appellation of "Growths." He recognises but two kinds of these productions. In the one, the abnormal or diseased materials are merely accumulated in some part or other of the body; in the other, they are liable to become infiltrated amid the elementary molecules in the natural fissures of the affected part, causing an atrophous destruction of these molecules, and preventing the evolution of similar new ones; at the same time, they produce a similar disease in distant parts, they re-appear after destruction, and they give rise to a peculiar and characteristic cachexia, which invariably proves fatal. Thus, we have the subdivision of Growths into those that are Non-infiltrating and those that are Infiltrating. The first comprises the several genera of Fibrous Growths, Steatoma, Enchondroma, &c., &c. The second contains but one genus, and that genus is Cancer or Carcinoma.*

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* The classification of Adventitious Products, proposed by our author, is far from being either simple or very satisfactory. Albumen and oily matters are considered to be inorganic; while tuberculous and even melanotic matter is said to be "possessed of organisation." The arrangement, adopted by Dr. Copland in the art. Disease in his great work, appears to us to be, although not unobjectionable, in some respects preferable to Dr. W.'s. He makes a three-fold division. The *first* embraces all adventitious products that are incapable of organisation or vitality; such as Pus, Tubercle, Fatty Matter, Glue-like or Colloid matter, and Melanosis. The *second* contains those that are susceptible of organisation; and this is subdivided into two groupes, according as the organisable products arise from sthenic inflammatory or hypertrophic action, and do not necessarily depend upon a depraved state of the constitution; or, as they originate in a constitutional vice, and may tend at the same time to vitiate the fluids and solids of the body more completely. In this class we find the various descriptions of tumours or morbid growths; the different species of Carcinoma belong to the last-named groupe or subdivision of these. The *third* comprehends those

Under this generic appellation, Dr. Walshe describes not only the various forms of what have usually been called Scirrhus and open or ulcerated Cancer, but also that most formidable morbid growth which has been known at different times by the names of Spongoid inflammation and Tumour, Fungus Hæmatodes, Medullary Sarcoma, Encephaloid or Cerebriform Degeneration, Fungoid Disease, Cephaloma, Soft or Medullary Cancer, &c.; and, lastly, that peculiar gelatiniform deposit or formation, which has been denominated Colloid matter or tissue, and which our author ranks as a distinct species of Carcinoma, in juxta-position with the former two.

Dr. Walshe begins with a description of—

Encephaloid.—This name was first applied by Laennec to a modification of cancerous growth, from its marked resemblance to the substance of the brain. Abernethy had previously called it, from the same circumstance, *medullary* sarcoma.

"Encephaloid tumors, like all other Growths, exhibit to the naked eye two kinds of component material,—a stromal or containing, and intra-stromal or contained, element. The stromal substance, generally of denser structure than the other, divides the mass into minute loculi, lobules, and lobes. Its different divisions do not intersect, but describe curves in such manner as to circumscribe spaces, which, however various in size, have a general tendency to spherical form. Occasionally of fibrous consistence, even in their minuter divisions, the laminæ composing the walls of the loculi (in other words, the stromal* structure,) are generally of very delicate cellular texture, and have in some cases been compared by observers to a spider's web. The cerebriform appearance of the entire mass depends upon the contained, rather than the stromal, element." P. 13.

The consistence of the cerebriform matter may vary much in different portions of the same tumour. It may be as firm as fresh healthy adult brain; at other times, it is so soft and diffluent that it may be removed from its containing loculi by gentle pressure, or by letting a stream of water fall upon the morbid mass. The expressed substance occasionally preserves the shape of the loculi, and, oozing out like the matter from sebaceous follicles, looks like fragments of boiled rice or vermicelli.

Encephaloid structure is usually very vascular: in this respect, it presents a striking difference to the other two species of Cancerous growth. The vessels may often be seen to plunge from the stromal tissue into the contained cerebriform substance. In some successfully-injected specimens, the morbid mass has appeared to be almost exclusively formed of a vascular plexus. With respect to its form of deposition, or mode of connexion with the surrounding tissues, Encephaloid is either found as a distinct tumour, or it is infiltrated amid the elementary molecules of the part which forms its *nidus*. The morbid mass is generally non-encysted; but sometimes it is inclosed in a pseudo-cyst, formed by the condensation of the adjacent cellular membrane, and the inner surface of this may have a serous appearance. Under such circumstances, the tumour has been known to

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productions which are not only organised, but which possess an independent life: viz., all Entozoary Formations.

* From στρῶμα, stratum.

be enucleated with tolerable ease, as in some cases recorded by Dupuytren. Encephaloid occurs in the viscera in a peculiar nodular form; numerous tumours commonly co-existing in the same organ. The liver is particularly prone to this form of the disease, and may contain several hundred rounded masses, varying in size from a pea to a small egg. The lungs, also, are not unfrequently the seat of such nodules. Encephaloid growths acquire a larger size than almost any other sort of morbid formations, with the exception of compound cystoid and enchondromatous masses.

The following *varieties* of Encephaloid have been described; the physical characters of the morbid structure being found to vary a good deal in different cases.—1. Sometimes it is much firmer and closer than usual, resembling a good deal the boiled udder of a cow. This is the *mammary* or *mastoid* (so called by Abernethy) variety.—2. In other cases, it is hard, "of almost homogeneous appearance of a pale yellowish colour, unctuous crisp-look, and possessing on the whole the visible characters of a sliced raw potatoe." This is the *solanoid* tumour of M. Recamier.—3. It resembles the milt of certain fishes. Dr. Monro 3tius, was the first to describe this variety under the name of the "*milk-like* tumour; it is of very rare occurrence.—4. The *nephroid* cancer of M. Recamier, from some resemblance to the structure of the kidney.—5. The *fasciculate* cancer of Müller. "I am inclined," says the author, "to regard this as a distinct and important variety of encephaloid, but cannot, with Müller, consider it entitled to the rank of a species apart; for cells are sometimes to be discovered; and, moreover, filamentous or fibrillar structure, though to a much less amount, forms a constituent of other varieties of cancer."—6. When the brain-like character of the tumour is combined with an unusual degree of vascularity, it may be called *hæmatoid*.—7. The term *fungus hæmatodes* should be restricted to that variety of encephaloid, "when interstitial hæmorrhage leads to sanguineous infiltration of the mass, or to irregular accumulations of blood through its substance; and when, especially after ulceration of the integuments, a rapid development of fungating growths takes place from its exposed surface."

In reference to the nomenclature, employed in designating these various forms of what is conceived to be essentially the same morbid formation, it would be well certainly (as Dr. Walshe observes) if some other specific appellation than that of encephaloid were adopted; and then the absurdity of speaking, for example, of the *nephroid* variety of *encephaloid* would be avoided. Dr. Walshe appears to prefer the use of the old term *soft cancer*.

Scirrhus.—By this term we are to understand "that species of cancerous growth which is distinguished by its hardness and toughness."* The practice of some writers, especially continental ones, applying the term to all tumours that are very hard, has introduced much and very serious confusion. Unless the morbid structure be at the same time of a malignant nature, and liable to terminate in intractable ulceration, it should not be called Scirrhous.

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* Σκιρρος, Scirrhus, from σκιρος, a piece of marble.

Scirrhus, like encephaloid, invariably consists of a *stroma*, and of a diseased element contained within its meshes. When the mass is solid throughout, it often appears to be homogeneous, and then it is not easy to recognise the two structures of which it is composed. By allowing, however, the light to fall on the cut surface (which has usually a peculiar semi-transparent glossiness) of the tumour at different angles, or by submitting a slice of it to maceration, we shall generally be able to distinguish the stromal from the inter-stromal structure. The proportion of these two substances varies much in different cases, and seemingly, according to the degree of development of the tumour examined. On this point, we shall allow our author to speak for himself:—

"In a very early stage of its progress the stromal structure predominates, forming a firm, solid, pale, fibrous, or cartilaginiform-looking mass; at this period the deficiency of intra-stromal substance renders the stroma itself imperceptible unless upon close scrutiny. The similarity of scirrhus to fibro-cartilaginous texture under these circumstances has been recognised by numerous observers; M. Cruveilhier has even gone so far as to affirm that the only distinctive character (he speaks of those ascertainable with the unassisted eye) between some tumours in the bones, really scirrhous, and others merely fibrous, consists in the presence of cancerous juice (removable by pressure) in the former. The diagnostic importance of this fluid is unquestionable; but I believe that the two kinds of growth may also be distinguished by the rectilinear arrangement of the stroma of scirrhus, and the curvilinear of that of fibrous tumours.

"At a more advanced period a softer matter accumulates in the meshes of the stroma, and the locular character grows more obvious." P. 19.

The colour of the cut surface of a scirrhous tumour is a flinty blueish-white, when the mass is very firm; a lilac-yellow, pale dirty fawn, or greyish tint prevails, when there is much inter-stromal matter. The hardness is sometimes very great: hence the common appellation of "*stone-cancer.*" This character is always much more remarkable when the tumour is *in situ*, than after removal.

By pressure, a fluid may be forced to exude from the substance of scirrhus. When the tumour is very hard, this fluid is thin and watery; but, when less consistent, it is thicker, more opaque, inclining to a creamy appearance, and may be tinged with blood. The dull-white opaque filaments, that are often observed to be irregularly scattered through the substance of a scirrhous growth, are nothing more than lymphatic vessels, or in the mamma, lactiferous tubes. Small masses of Colloid are often found within the substance of a scirrhous mass. Scirrhous formation is unquestionably vascular, notwithstanding the assertion to the contrary of Scarpa, Travers, Lobstein and others: its blood-vessels, however, are very singularly and unequally distributed. "Patches of some size, which exhibit no trace of blood-vessel, may be seen in the vicinity of others sufficiently vascular; but the physiological inference, deducible from this fact, is not of the importance it would have possessed previously to the discovery of the mode of nutrition of extra-vascular structures."

Like encephaloid, Scirrhus is either developed as a distinct tumour, or it is infiltrated in the substance of some organ. Some writers have contended that scirrhus never occurs as a primary and idiopathic disease, except in some description or another of secretory tissue. This opinion has been amply shewn to be quite fallacious. The bones, the voluntary muscles,

the heart, the lungs, the penis, &c., may be primarily affected. Scirrhus is rarely, if ever, invested in a true cyst; although Dupuytren, Recamier and others describe the occasional existence of such an envelope.—The infiltrated disease is especially common in the uterus. When this form attacks the bones, the osseous structure gradually becomes softened, while the soft tissues become indurated; thus affording, as Dr. Walshe remarks, a striking illustration of the assimilative power of the morbid growth; for, in each instance, it alters the consistence of the tissue affected to its own standard.

Scirrhous tumours are rarely, if ever, very large; they seldom exceed an orange in size. This character serves, in part, to distinguish them from fibrous growths.

The varieties of Scirrhus, that have been described, are—1, the *pancreatic*, from its alleged resemblance to the tissue of the pancreas; 2, the *chondroid*, from its dense and crisp structure like that of cartilage; 3, the *lardaceous*, from being not unlike to the boiled rind of bacon; 4, the *napiform*, from exhibiting on its divided surface the appearance of bands, the arrangement of which is such as to produce some similarity to a cut turnip; 5, the *apinoid*,* from its striking resemblance to the cut surface of an unripe pear, in consequence of "the dissemination of comparatively opaque, almost buff-coloured, spots through a more translucent ground of very pale yellowish lilac tint." This variety unquestionably belongs to the *carcinoma reticulare* of Müller. 6. Scirrhous structure is occasionally, though rarely, highly vascular; this may be called the *hæmatoid* variety of the disease.

Colloid.—This term was applied by Laennec to adventitious products having a gelatiniform appearance (κολλη, glue, and ειδος, form.) There is one form of cancer, in which the inter-stromal, or rather intra-locular, substance presents this feature; and it is to this malignant formation that Dr. Walshe wishes to restrict the term. Laennec and other writers since his time have, in Dr. W.'s opinion, erred seriously in associating with true colloid structure all adventitious matters which have a jelly-like aspect. The "gum-cancer" of Hodgkin, and the "carcinoma alveolare" of Müller, belong to this species of cancerous disease. Dr. Carswell regards Colloid as a mere variety of Scirrhus; and doubtless many will agree with him. The following excellent description will enable our readers to distinguish the true Colloid structure (as our author understands this term) at once:—

"The section of a colloid growth presents an appearance which, once seen, can scarcely be forgotten. The surface is divided into a vast number of distinct loculi, regularly arranged, of an oval or rounded shape, varying in size from that of a grain of sand to the largest pea. The septa composing the walls of these loculi possess distinctly fibrous characters; their thickness is pretty uniform throughout; occasionally, however, they are broader in some situations than in others; in this case, the thicker septa may generally be found to give off productions forming the walls of secondary loculi, and these again others, constituting a tertiary order. The loculi sometimes form shut sacs, in other in-

* From απιον, a pear, and ειδος, form.

stances communicate with the circumjacent cells; it is not very unusual to observe some of these loculi, in which the walls seem to have collapsed and almost coalesced from the removal of the contained matter. In point of consistence a colloid mass, of which the loculi are perfect, usually resembles firm cheese, but may be much harder. The general colour of the divided surface is greenish-yellow,—the tint being mainly dependent on that of the contained matter, which is, besides, semi-transparent, tenacious, and clammy, and resembles in respect of density, as in other physical properties, soft jelly. It is not easily expressible from the containing loculi, but may be picked out with the point of a scalpel, or removed by maceration." P. 26.

Colloid is indistinctly, if at all, vascular. It is met with either as a distinct tumour, or infiltrating the tissue that is the seat of the morbid formation. The latter form occurs most frequently in the stomach, the walls of which sometimes become so exceedingly thickened in consequence, that the organ does not collapse when removed from the abdomen: it is met with likewise in the intestines and omentum. Dr. Walshe has never seen disseminated nodules of colloid in any of the parenchymatous organs: small spots however of infiltration in the omenta sometimes exhibit this appearance. In a subsequent part of his work, our author alludes more particularly to the common seat of colloid cancer. His words are:—

"The organs and parts in which I have myself actually seen this species of cancer are the stomach and adjacent glands; the small and large intestine; the omentum and the female breast.—An organ in which I have not seen it, but in which there can be no doubt of its having occurred, from the accuracy of the description, is the spinal marrow.—Organs and structures in which its occurrence is doubtful, are the lung and tendon.—Organs and parts in which other products have obviously been mistaken for colloid cancer, are the bones, the ovaries, the uterus, and the extremities.

"Cruveilhier, in associating colloid cancer with osteo-sarcoma and spina-ventosa, has evidently been deceived by some of its physical similarities to enchondroma. When he speaks of this cancer occurring in the ovary, his observations are to be understood really to refer to compound cystoid formations; and lastly his cases of pultaceous colloid cancer of the uterus appear to me examples of encephaloid infiltration, in which the locular character is marked with unusual clearness.

"Again, I have carefully examined some specimens of the gelatinous-looking masses, which occur with some frequency at the upper part of the arm, and give the part the exact outline of a shoulder of mutton. In no single one of these cases was the structure that of colloid cancer; but either of enchondroma or compound cystoid formations, associated sometimes with fatty matter in considerable quantities." P. 100.

Colloid growths sometimes acquire a large bulk: they have been found in the omentum as large as a cocoa-nut. Two-thirds and more of the anterior and posterior surfaces of the stomach have been seen infiltrated with the diseased matter.

Cruveilhier has described a variety of colloid which he calls "alveolar cancer *à matière perlée*," from the white, pearl-like substance of the intra-locular matter. Müller, however, regards this substance "as a granular deposit of the peculiar variety of cholesteric fat, to which he has given the name of *cholesteatoma*."

The French pathologist has described a second variety, in which the inner-stromal matter is opaque, of a yellowish hue and tallow-like aspect,

with granular fracture and feel, and the chemical composition of casein. This is the *areolar pultaceous Cancer* of Müller. Dr. Walshe suspects that this variety is rather encephaloid than colloid in its characters.

CHEMISTRY OF CANCER.

Cancerous substance, in a chemical point of view, is regarded by Müller and other enquirers as a protein-formation: "it belongs essentially to the *albuminous* variety, although both *fibrine* and casein enter (in general to a comparatively slight amount) into its composition." Several chemists have maintained that *gelatin* enters more or less abundantly into the composition of cancerous formation; but others have not detected a particle of this constituent in it.

Müller arranges all adventitious growths, in respect of their chemical composition, in three classes: viz., the albuminous, the gelatinous, and the fatty. He places all cancerous formations among the first set; and ascribes, with much plausibility, the occasional existence of gelatin in them to the presence of some cellular membrane along with the morbid structure. Even in the jelly-like matter of Colloid, when it is carefully freed from membranous structure, gelatin is rarely found to be present; it seems to be very generally nothing but a peculiar form of albumen.

Alcohol acts very differently upon the different species of cancer. The gelatiniform matter of Colloid retains its transparency in it, while scirrhous and especially encephaloid substance are rendered perfectly opaque.

The ultimate microscopical cells of cancer are insoluble in cold and boiling water, and are not seriously affected by acetic acid—characters distinguishing them from the red and white corpuscles of the blood, and also from those of purulent matter.

We need scarcely say that practical men should be very cautious in attaching much consequence to the chemical composition of morbid organized productions.

Does not Dr. Walshe venture very unnecessarily into the region of mere speculation, when he suggests what *may be* the chemical qualities of cancer-blastema? literally we know nothing on the subject; all is fond fancy and guesswork.

PHYSIOLOGY OF CANCER.

Origin of the Disease.—It is quite unnecessary to do more than simply notice the various doctrines, that have been proposed by different theorists on this very obscure subject. Cancer has been attributed to the presence of parasitic animalcules, of a peculiar species of hydatid, of an animal fungus possessed of independent vitality, and so forth; but the conclusive refutation of these hypotheses, in our author's opinion, is to be found in the simple question, who has ever seen or demonstrated the presence of these formations?

Broussais and his followers have absurdly maintained that cancer is the result of mere inflammatory action. The folly of this notion is admirably exposed by our author in these remarks:—

"The sophistry of the system of argument by which the doctrine of irritation was upheld is notorious: but the facts that simple induration is a state distin-

guished by its inactivity, while scirrhus possesses in itself an active principle of increase and growth; that carcinoma assimilates to its own nature the tissues it attacks, while inflammatory induration is modified by the particular structure affected; that the substance of cancer may from the first be almost pulpy, instead of necessarily possessing any marked degree of hardness; furnish a better refutation of it than any critical exposure of its fallacies. The former important result of clinical observation is confirmed, while it is explained, by microscopical investigation. On the one hand, simple induration-matter (as Müller was the first to state) does not contain cells provided with the germs of a new generation of similar structures; while, on the other hand, an inherent faculty of growth is produced and maintained in cancer by the formation of cells, which do contain such embryos of secondary generations." P. 38.

The ingenious doctrine of Dr. Hodgkin that cancer is produced by, and essentially consists in, the presence of simple or compound encysted structure, is generally admitted in the present day to be untenable. That carcinomatous matter is occasionally associated with the multilocular cysts of the ovary and mamma, may be admitted without recognising any necessary connection between the production of the two formations.*

We come now to notice, and that very briefly, the opinions of M. Cruveilhier and Dr. Carswell.

The former of these distinguished pathologists maintains that "the formation of cancer, like all nutritive phenomena, healthy and morbid, takes place in the venous capillary system; that from the minute veins the morbid products are poured into the cellular membrane, either by exhalation or through lacerated openings." The latter, also, has advocated the doctrine that the cancerous matter exists ready-formed in the blood, and that it becomes separated therefrom after the manner of nutrition or secretion, either in the molecular structure, or on the free surface, of organs. The act of cancerous deposition is thus regarded rather as one of depraved nutrition of the part affected, than of any actual transformation or degeneration of existing tissues. But, while he believes that "a modification of the blood constitutes the primary, if not the essential, condition of the formation of the disease," he admits, in the very next sentence, that "we can offer no explanation of the nature of the change effected in the blood, nor, consequently, of the nature of carcinoma."

The only argument of any weight in favour of the primary production of the *materies morbi* in the blood, is the circumstance that carcinomatous matter has been found in the interior of the veins, not only of the affected part, but of organs at a distance from it. Dr. Walshe is not, however, satisfied of its force; and he thinks that it is much more probable that the morbid matter, in such instances, had found its way into the cavity of the veins by absorption from some part or organ in which cancer was already developed, than it had been primarily generated within the vessels themselves. He suggests, also, that the exhalation of ready-formed cancerous

* The cysts, which are not unfrequently found in the interior of cancerous growths, are suspected by our author to be exactly similar, in their mode of origin, to apoplectic cysts in the brain: a coagulum of blood has been effused, its solid constituents have become gradually absorbed, and a cystiform bag remains.

matter from the very minute capillaries is a physical impossibility (in consequence of the size of the diseased globules or nucleated cells,) unless on the gratuitous hypothesis that the coats of these tubes have undergone some change.

Having disposed of the doctrines of others, our author proceeds to expound his own views as to the development of cancer. He supposes that the first act consists in the exudation of what he calls a *blastemal or germinal fluid*, which is in short nothing more than the liquor sanguinis, (supposed to be) somehow or other modified in its vital properties.* In what this modification exists, Dr. W. is, as a matter of course, quite unprepared to say. He is, however, of opinion that, most probably, it takes place within the vessels, *while the blastema is still mixing with the general circulating fluid.* If such be supposed to be the case, we can perceive little or

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* Is not this very nearly the doctrine of Abernethy in different language? He referred all adventitious formations to the coagulable part of the blood as their origin: this he supposed to be effused into the cellular or parenchymatous tissue, or on the surface, of organs; then to become organised, and to derive the materials of its subsequent growth from the vascular system of the surrounding parts. Dr. Copland's views are nearly the same, as developed in his excellent remarks on *Morbid secretions associated with morbid nutrition, or secretions susceptible of organisation.* The following passage may be appositely introduced here:—

"The class of productions, in addition to a small proportion of the constituents of unorganised secretions, contain a large quantity of fibrine. M. Andral supposes that a small portion of this substance, either coagulated in the blood-vessels, or extravasated into or upon the tissues, is the original source whence the organised productions are formed; the fibrinous deposit presenting the appearance of a whitish or reddish mass, of variable consistence, and having a tendency to become organised, although at first possessing neither organisation nor vitality. But I believe that all fibrinous exudations have a certain degree of derived vitality, disposing them to organisation, particularly when they continue in contact with the part that produced them. This pathologist considers, that a portion of fibrine may, when coagulated, indicate its vitality without presenting any blood-vessels or any determinate texture; in which state it may be compared to a zoophyte, which performs a certain grade of vital function, although destitute of a circulating system; and that the fibrinous mass, when impregnated with life, becomes the seat of various organic actions; has a tendency to assume the form of some one of the simple or compound animal textures; performs the functions of secretion, and exhibits the same morbid phenomena, when irritated, as the natural tissues do under similar circumstances. He further supposes that several tumours, the origin of which has hitherto been mistaken, may be traced to the solidification of fibrine in the blood-vessels of the part; and adduces cases, from the minute dissection of which, he infers, that many of the adventitious productions usually called *cancerous, sarcomatous, encephaloid,* and *medullary,* are entirely formed in this manner; the minute vessels—arterial, capillary, and venous—being filled with solid fibrine deprived of its colouring matter. It appears, however much better established, that the *latter* especially of these productions are formed chiefly of coagulated or altered fibrine, thrown out of the blood-vessels owing to their perverted action, and either collected in masses, into which blood-vessels are produced, or infiltrated into the tissue of the part, the vascularity of which is increased along with the alterations that supervene in the adventitious formation and its containing structure." Vol. I., p. 590–1.

no difference between the hypothesis of Dr. Walshe and that of Dr. Carswell. As to saying that Dr. C. holds the opinion "that the material elements or solid constituents of tumours exist primarily in the blood, and in fact circulate in suspension in that fluid, before they are aggregated into masses," the allegation seems to us to be scarcely warranted by any part of his writings. Surely Dr. Walshe is too niggard of his praise to his distinguished predecessor in the chair of Pathological Anatomy at University College; there is not one expression of cordial admiration of his merit, throughout the present volume.

On the whole, it must be frankly confessed that, after a great deal of ingenious speculation and of very learned language has been expended upon the subject, we really know little or nothing as to the *origin* or proximate cause of Cancer. The *structure and mode of growth* of the morbid formation, when this is once fairly developed, is more within the field of our observation.

"The ultimate solid constituents," says our author, "of carcinoma are granules; nucleated cells of spherical, elliptical, irregular, or caudate shape; free nuclei; and fibrillar substance: with these is associated in variable quantities a semi-transparent fluid,—blastema obviously apt for the generation of new solids. Capillary vessels are always discoverable. With these essential elements fat-globules are, from the constancy of their occurrence, almost entitled to take place. Compound-granule corpuscles, melanic matter in the form of cells and free-granules, saline matters, and certain other substances occur as accidental and contingent elements."* P. 55.

For a minute description of each of these constituents, we must refer our readers to the original: all that we shall do is very briefly to notice the *vascular supplies* of Cancerous growths. The blood-vessels are *found* to be of two kinds; 1, ramifications from the vessels of the surrounding tissues; and 2, newly-formed and independent vessels, which originate *de novo* in the morbid structure, and whose contents are found to exhibit (at least for a time) an oscillatory movement quite unconnected with the general circulation: the former are called by Dr. Carswell the *collateral*, the latter the *proper*, vessels of the tumour. These two sets of vessels gradually inosculate with each other; but, as new ones are continually forming, there are always some that are isolated and independent. The softer the tumour, the more numerous in general these are. The following appearances in the gradual development of these *proper vessels* may often be traced with the naked eye:—

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* In a subsequent part of his work, Dr. Walshe, when alluding to the meaning of the epithet "malignant," as used by surgical writers, distinctly cautions the reader against attaching undue importance to the *microscopic characters* of cancerous formations. "Müller," says he, "admits that there are characters by which 'malignant' may be distinguished from 'benignant' growths, but they are only appreciable by the naked eye or with a lens, and lost under the microscope,—an opinion in which I perfectly coincide. In fact, *in the present state of knowledge*, chemical and microscopical examination would (while they indubitably in many cases aid greatly in distinguishing growths of different properties and tendencies) often lead us, on the other hand, into the error of confounding growths perfectly dissimilar in nature and effects." P. 188.

"In one part of a tumour may be seen some minute unconnected points of blood; at another, appear a number of such dots united in linear juxtaposition, so as to form a streak of blood uninclosed in any distinct vessel; elsewhere, a vascular investment is found for a similar streak; further on, a similar piece of delicate tube divides at each extremity into a number of tapering ramifications, assuming a stellate or tufted arrangement." P. 60.

It has been disputed whether these new vessels are veins or arteries. Cruveilhier calls them veins: and, certainly, they have more of a venous than of an arterial aspect. They are frequently varicose; their walls are always very thin; hence their extreme tendency to become ruptured, and give rise to alarming hæmorrhage. The rapidity of the growth of a carcinominatous swelling is usually proportionate to the degree of its vascularity. Much also, in this respect, depends upon the degree of compression to which it is subjected. The rapidity of the growth of an Encephaloid, which perhaps may have been nearly stationary for years after it has burst the skin, is too well known to every surgeon. Internal growths also sometimes increase with extraordinary speed. Andral has related a case of encephaloid tumour of the omentum, which so rapidly extended downwards as *daily* to acquire an increase in size, that was perceptible both by the eye and the hand; the patient was carried off within five weeks from the first appearance of the swelling.

Process of Decay.—All cancerous formations exhibit a tendency, after a varying lapse of time, to a process of inherent degeneration and decay, preparatory to their more or less complete elimination from the body. The morbid mass becomes softer and softer, until it is, either generally or partially, reduced into a pulpy or still thinner matter. Softened encephaloid has a creamy or milky look (hence the term "galactomyces," applied to it by Ritgen;) its consistence varying between that of soft cheese and of thin pus.—The softening of scirrhus is usually much more gradual, and takes place also more irregularly in different parts of the morbid mass: on compressing it, either a thin turbid brownish-coloured fluid, or a thick, opaque and creamy one, or a cheesy-looking matter, not unlike that of the sebaceous follicles, may be squeezed out from its substance.—The jelly-like contents of Colloid undergo but little change.

The softening process of a cancerous growth has been very differently explained by different writers. Drs. Carswell and Hodgkin regard it as the result of mortification or gangrene, arising from obstruction of the circulation through the tumour, either from its veins becoming filled up with cancerous matter or from the compression of the adjoining tissues upon its substance. Other writers have ascribed the change in question to inflammatory action having been set up in the morbid substance. That such is the case in some instances is evident from the admixture that is occasionally observed of pus-corpuscles with broken-down fibres and cancer-cells. In others, however, we can observe no evidences of any inflammatory process having ever taken place. The softening may perhaps be most reasonably attributed to an internal spontaneous degeneration, similar in nature to that described by M. Gulliver as occurring in fibrine when retained in the interior of blood-vessels (*vide* Med.-Chir. Review, No. 63, January, 1840.)

Elimination.—While the process of softening is going on in the substance of a carcinomatous tumour, the surrounding tissues usually become the seat of inflammatory and suppurative action. In a few cases, the investing cellular membrane sloughs away entirely, and the morbid growth has been known to be thus fairly detached and expelled from its *nidus*. When seated under the skin, the superjacent integuments become gradually thinner and thinner, either from atrophy or ulceration, until at length they give way; then we have what is called an "open Cancer." Through the outward opening thus made, the cancerous matter is expelled, either as an ichorous discharge, or in masses: this latter mode of separation occurs chiefly in encephaloid. The progress of this species of cancer is, it is well known, much more rapid after the skin has broken than that of scirrhus.

Cancerous ichor or Sanies is found to exhibit, under the microscope, "the elements of cancer in a state of more or less complete disintegration, —the cells being sometimes reduced to fragments, sometimes retaining their outline perfectly. With these elements are associated oil-globules, crystals, epithelium-scales, pus-corpuscles, blood-corpuscles, and certain elements of the structures (or of the secretions of these,) amid which the ulcerating cancer is seated. Cholesteatomatous matter, as has long been known, occasionally forms on the surface of ulcers and sinuses of various kinds; and Müller has found in one instance the peculiar non-nucleated polyedral cells of this variety of fatty product, forming a thick layer of substance like tallow, on the surface of a cancerous ulcer in the mamma. When such a formation exists on the surface, its elements will of course be occasionally found in the discharge."

Infusory animalcules are not unfrequently discoverable in cancerous ichor. The occasional presence of these has actually led some *hasty* writers to attribute the production of the morbid growth itself to animalcular development.

Occasionally, though very rarely, cancerous ulcers have been known to assume a healthy appearance after a time, and even to become cicatrized over a greater or less extent of their surface. But in every such instance the temporary amendment has proved to be but a delusion; the lull before the outbreak of the storm.

PROPAGATION OR DISSEMINATION OF CANCER.

In some cases the morbid growth appears to be confined, from first to last, to the single organ in which it arose; no other organ or part of the body exhibiting upon dissection any traces of infection. The proportion of such cases to the total number, Dr. Walshe declares to be "far from being contemptibly small."

The spreading of the disease takes place in a variety of ways. The parts, immediately surrounding the original spot of the miscnief, may become infiltrated with the morbid matter. On the subject of *cancerous infiltration*, Dr. Walshe remarks:—

"This is the characteristic and most essential of the changes under consideration. Extension of a cancerous growth to contiguous textures by the process of infiltration occurs in the case of the three species, but not with the same facility and frequency. *Encephaloid* has been by some considered more prone to push aside, than to infiltrate, the adjacent parts: Abernethy considered this a fact of sufficiently constant occurrence and importance to warrant a complete

nosological separation of scirrhus and 'medullary sarcoma.' But is far from unusual for encephaloid of the cellular membrane of the limbs to spread to the adjoining tissues. Cerebriform growths originating under the peritonæum spread to the bones of the pelvis, and even of the thigh. This progressive destruction even of the hardest tissues was, indeed, by Ruysch esteemed so important, that he named the disease 'ossivorous tumor.' I have myself observed not a few cases, in which the infiltration of the muscular structure, consequent on the presence of tumor in the cellular tissue, was so perfect, that the former seemed formed of fasciculi of encephaloid fibres. Such facts are so common, that it is needless to adduce further illustration. Dr. Hodgkin goes so far as to affirm that encephaloid is more prone than scirrhus to affect the surrounding tissues by infiltration. In this extreme opinion he is, according to my experience, certainly unsupported by facts. In the female breast, for instance, while infiltration of the subjacent muscular and other structures is an invariable occurrence, if the disease be scirrhus, I have seen not a very few cases of advanced encephaloid, where the morbid mass had not spread to those textures.

"The extension of *scirrhus* to contiguous textures is a very constant phenomenon; as it spreads, the scirrhous growth loses its circumscribed, rounded, moveable character.—No less frequent is the propagation of *colloid* in this manner." P. 89.

That certain extra-vascular tissues are acted upon, and eventually destroyed, by the progressive advance of cancerous disease is well known to surgeons; but the mode in which this destruction takes place has not yet been fairly made out.

"Articular cartilages may be adduced as exemplifying the circumstance; and it appears to me perfectly consonant with reason, and supported by the very strongest and most direct analogy, to suppose that this extra-vascular tissue imbibes blastema thrown out by the vessels of juxta-posed vascular structure, and that this blastema subsequently goes through the same series of changes as if infiltrating a vascularized tissue. It is a thoroughly established and familiar fact, that though the cornea ranks among structures deficient in blood-vessels, and is therefore incapable of undergoing the earliest or congestive stage of inflammation, still it becomes affected with the second stage of that process, by imbibing exudation-matter effused in its vicinity by the vessels of circumjacent vascular structures. This truth, which is so conveniently demonstrable on account of the natural transparence and acquired opacity of the cornea, is more difficult to prove, but, I am persuaded, not less real, in the case of cancer of the articular cartilages." P. 54.

The mere juxta-position or close proximity to parts affected with cancer may induce contamination in certain tissues, although there is no continuity of substance between them. Thus, when the ovary, mesentery, or liver is the seat of cancer, the parts in contact with these organs, as the intestines and abdominal parietes, are often found to have become infected. The transmission of the disease to parts, at a distance from the seat of the primary evil, may be effected through the medium either of the lymphatics or of the veins. It used to be the custom of medical writers to refer the more frequent development of secondary cancer, as of secondary abscesses, in certain organs than in others, to a peculiar *sympathy* existing between the parts affected. But this is a mere fancy, utterly unsupported, or rather directly contradicted, by accurate observation. For example, it is now an admitted fact, that the mamma is very rarely involved when the uterus is primarily affected; and, on the other hand, it would seem, from indubitable evidence, that the uterus ordinarily remains perfectly free in cases of fatal mam-

mary cancer. Dr. Blundell says that he has never seen a coincident deposition in the breast and womb. The same thing may be said respecting the penis and prostate gland. Again, as bearing upon this point—the fallacy of the doctrine of sympathetic consentaneousness, in reference at least to the development of organic disease—it deserves to be noticed, that the organs most frequently affected with secondary cancer are the Liver and the Lungs; which cannot be said to have any very immediate sympalhy with those parts in which primary cancer is most frequently developed. That the veins are the real channels by which the contamination and transmission are effected, is very ably reasoned by our author upon the following grounds:—

"Cancerous matter exists in a multitude of cases in the veins of the diseased part; now this is obviously a most favourable circumstance for its circulation with the returning blood. The rapidity of the successive development of the disease in different organs, sometimes observed, seems only producible by the agency of a fluid which, like the blood, pervades them all. The liver and lung, the two organs in which foreign bodies introduced into the circulation are almost invariably observed to stagnate, are by far the most frequent seat of the secondary development of carcinoma. The parenchymatous viscera and the bones, the precise structures most frequently affected with secondary abscess, are those peculiarly liable to secondary cancer. In respect of both morbid products, the liver and lungs stand at the head of the list for frequency of implication. Secondary abscesses affect a special preference for the peripheric strata of the viscera; so likewise do secondary cancers. In the instance of the lung, I believe this readily explicable by the fact, that the majority of the ultimate ramifications of the pulmonary artery reach the periphery of the organ before becoming continuous with the capillaries, where stagnation must occur. Double organs are very rarely the simultaneous seat of primary abscess; in cases of secondary abscess, both invariably suffer: the same propositions hold good of cancer. Secondary cancer in the liver and lung occupies the same elementary seat as the pus of secondary abscesses, a fact particularly insisted on by Cruveilhier. The lobules are the obvious seat of both products; and hence arises the similarity of form and outline exhibited by them both in the very early stages of formation. Add to all this the consideration that the generation of secondary, as a consequence of primary cancer, is in many cases otherwise utterly inexplicable; and a mass of argument is obtained, to which little solid objection can be offered." P. 107.

Encephaloid seems to be more liable to induce secondary carcinoma than even scirrhus: colloid ranks very low in this respect.—In the majority of cases, the secondary disease, whatever may have been the nature of the original growth, is of the encephaloid species;—scirrhus, however, is far from being uncommon.—Whenever carcinoma exists in several parts or organs at the same time, it is very generally of encephaloid kind. In a few cases, indeed, Scirrhus invades numerous organs; but commonly it is limited to one. In a remarkable case recorded by Velpeau, the number of organs and tissues involved in the cancerous disease was truly remarkable: viz., the cellular membrane, the muscles and bones, the lungs and heart, the tissue between the costal pleura and ribs, the stomach, duodenum and small intestines, the pancreas, kidneys, liver, vena cava, coats of the gall-bladder, the peritoneum, dura mater, and the thyroid gland were all, in various degrees, affected with the disease.

"The reproduction of the disease," says our author, "in its original

locality in cases where, be it supposed, every single particle of morbid substance has been removed, can only be understood on the hypothesis that (the diathesis still remaining) the tissues originally affected retain their special attraction for cancerous germina." Query. Does this at all explain the matter? we fancy not. And here we may appropriately enquire, whether the examination of the blood and other fluids of the body has thrown any light upon the pathological history of Carcinoma. Dr. Walshe says that, in its advanced stages, he has occasionally remarked "a peculiar clamminess or stickiness" of the blood. Andral affirms that, he has in some instances detected pus-corpuscles in this fluid. But this can only be of occasional occurrence; as, even at advanced periods of the disease, when softening had been fairly established for some time, the microscope has utterly failed to detect the slightest difference in the physical characters of the blood. That, under such circumstances, there is often an excess in the proportion of the fibrine, and a decrease in that of the red globules, appears to be the result of the French pathologist's observation. Beyond this bare fact, hæmatological observations have not yet served to add anything to the history of Cancer. As we have already alluded to the frequent discovery of carcinomatous matter in the veins—not only in the neighbourhood of, but at a distance from, the seat of cancerous formations—it is not necessary to say more upon this point.

COMPARATIVE PRONENESS OF DIFFERENT ORGANS TO CARCINOMA.

The organs, that are most frequently the seat of this morbid formation, are the Uterus, Stomach, female Mamma, Liver, Rectum, and Testicle.

No satisfactory explanation has yet been given of the superior liability in these parts. We shall, therefore, not dwell upon the subject; but pass on to notice one or two other points that call for attention, and can be more easily investigated.

That *sex* has something to do with the development of cancer is proved by the overwhelming excess of cases that occur in the uterus and female breast. The urinary organs in the male, we may remark, are, on the contrary, much more liable to be affected than the same parts in the female. *Age* also has clearly a marked influence in the production and localization of this disease. The general cellular membrane, the eye, the brain, and the lymphatic system, are the parts most commonly affected before the period of puberty; while the uterus, mamma, stomach, liver, and intestines are seldom involved in the morbid process before the thirtieth year of life.—*Particular parts of organs* are more frequently attacked than others. On this point, Dr. Walshe says:—

"Cancer of the œsophagus is excessively rare in the middle portion of the tube, most common in its upper third: the pyloric end is more commonly affected than the other regions of the stomach: the middle lobes of the brain suffer somewhat more frequently than the anterior and posterior; cancer of the uterus almost invariably originates in the cervix; the glans and prepuce are the chosen seat of cancerous formation in the penis; the cortical substance in the kidney; the cervix in the bladder.

"It is a curious fact, that, when one only of double organs is affected, the right suffers more frequently than the left. I have found the right lung to be nearly three times as often the seat of primary cancer as the left; and the left kidney not half so frequently affected as its fellow." P. 96.

Double organs are rarely found to be both affected with *primary* cancer, and are probably never simultaneously affected; whereas the *secondary* disease almost invariably implicates both, and generally originates in the two at one and the same time.

There is another fact, connected with this point, that may be noticed here. Secondary cancer is most frequently found in the peripheric portions of the viscera; the primary generally occupies the deeper parts of their substance.—The *different species of cancer* affect certain tissues and localities more than others. Encephaloid (although it has been found in every tissue and organ of the body) is more frequent than either scirrhus or colloid in the testicle, lungs, kidneys, spleen, and cerebral meninges; Scirrhus predominates in the uterus, the female breast, stomach, lower lip, and skin; Scirrho-encephaloid is, "par excellence," the hepatic cancer; while Colloid specially attacks the alimentary canal and omentum. We can suggest no rational interpretation of these local predilections.

Symptomatology.—We have not much to say upon this head, as every hand-book and treatise upon surgery contain sufficiently accurate descriptions of the usual local symptoms of cancer. There are only one or two points in the history of its progress that seem to call for a passing notice. The first of these is, as has been already remarked, that a cancerous growth often feels very much firmer and harder *in situ*, than after excision. Tumours of the mamma, that seemed to be almost as hard as marble while still attached, may feel flaccid and yielding when removed: "the absence of blood and of vital turgescence explains the change: the earliest alteration, produced in them by well-directed compression, is of the same kind." This remark applies more especially to Scirrhus; but even an Encephaloid growth, when confined within a tense cyst like that of the *tunica albuginea testis*, may give rise to the same deceptive phenomenon. In a diagnostic point of view, this circumstance is of high importance. Again, the presence or absence of pain must not be allowed to influence the opinion of the surgeon very much in his diagnosis. Pain seldom exists, at least severely, in the early stage of the morbid formation; nor is it even very uncommon for the disease to originate, advance, and terminate in the death of the patient, without being attended by very great suffering. Colloid is the species of cancer which most frequently exhibits this peculiarity. Great importance has been too often attached by surgical writers to the kind or character of the pain; it is generally described as being uniformly burning or lancinating. But this is a very uncertain condition; for it may not be present in actual cancerous growths; and, on the other hand, it may attend the development of such as are not at all malignant in their nature.

After mentioning the various lesions and morbid changes that are apt to occur in the soft solids during the progress of cancerous disease, our author thus describes the alterations that may take place in the *osseous system*:—

"The following forms of morbid condition may be enumerated: 1. Atrophy of the spongy and compact structures from defective nutrition; 2. Excess of saline matter in their composition; 3. Insufficient supply of saline materials, in consequence of which, the bony tissue appears as if it had been macerated in a

mineral acid (carnification); 4. Carcinoma of their substance. The first of these forms is singularly rare; Recamier, however, appears to have met with an example of it. Of the third, I have neither seen an instance, nor have met with a perfectly authentic description, and insert it rather hesitatingly. In the first three cases the morbid state is a manifestation of the *cachexia;* in the fourth, an evidence of the *diathesis* having reached the bones. In the first, second, and fourth cases, especially the last, fractures occur with extraordinary facility. In cases of cancerous deposition in the bones, the fracture may either arise from complete transformation of a portion of the cylinder into cancerous matter, or from the pressure of a central growth, causing the absorption of the compact tissue. When the fracture is of the former description, crepitation will either be wholly absent or ill-marked: in the latter case this sign is producible in the ordinary way. When a cancerous patient suffers, more or less constantly, from pain in a particular spot in the course of a bone, the occurrence of such fracture is to be apprehended; but local pain is not a constant fore-runner of the accident, nor necessarily followed by it. The pain has been mistaken by patients for rheumatism; and this error has not unfrequently been shared by the medical attendant. In not a few cases the occurrence of fracture has manifestly hastened the fatal issue of the disease." P. 126.

Progress and Terminations.—Without doing more than simply enumerating the various ways in which a spontaneous cure of Cancer has been it is affirmed, effected—[how rarely, we need scarcely say,]—viz., resolution and absorption; conversion of the morbid substance into ossiform matter; suppuration; mortification; and cicatrisation after destruction by ulceration;—we wish to draw the reader's attention to the following interesting and important remarks on the *suspension* or temporary arrest in the progress of a cancerous formation that sometimes takes place. This circumstance is the more necessary to be generally known, from the erroneous but too common notion prevailing among medical men that serious organic disease cannot exist, when the symptoms very materially subside, or even entirely disappear from time to time; in other words, when they exhibit any appearance of *intermittence.*

"No fact is better ascertained in the history of phthisis than that, in a certain proportion of cases (as yet undetermined,) and under circumstances equally unknown, the disease undergoes suspension of progress of greater or less duration. This change in the usual course of events may take place in any stage, the most advanced as the earliest, of pulmonary consumption. Now in such cases although the affection is, strictly speaking, anything but cured, yet a change is temporarily effected, which, as far as regards symptoms and the patient's feelings, amounts to delivery from his malady. A suspension of this kind occurs also, but more rarely, in cases of cancer; not a few instances are on record where women, affected with scirrhus of the breast in an active state, and even in the ulcerated stage, having refused to submit to the operation proposed to them, the morbid growth has subsequently fallen into a quiescent condition, and the patient's life not been shortened by her disease. It has occurred to me to become acquainted with two cases in which the patients succeeded in concealing for years the existence of cancer (in both instances ulcerated) from their husbands: the husband of one of these persons was a medical practitioner, a sufficient motive for presuming that neither the local suffering nor general disturbance were severe or obvious." P. 137.

The fatal issue of cancerous disease may arise either from the general depravation or cachexia that is ultimately induced, or from the exhaustion

occasioned by continued pain and great discharge, or from the local disease obstructing and interfering with the performance of certain functions necessary to life, or from the supervention of some intercurrent disease, generally of an inflammatory nature, or lastly from hæmorrhage.

Duration of the Disease.—The data, which have hitherto been collected, are insufficient for any exact or very accurate conclusions upon this point. Cases have been known where a cancerous growth has existed for 30 or 40 years, and where the death of the individual seemed to be but little, if at all, accelerated by its existence. On the other hand, the disease has been known to prove fatal within two months from its primary development;—at least so far as *this* could be ascertained from the existence of symptoms. Perhaps we might fix a period of between three and four years as about the average duration of the disease, when not interfered with by any surgical operation. As a matter of course, the *species* of the cancerous growth has a very decided influence on the duration of the disease. Encephaloid is almost always much more rapid in its progress than true scirrhus: Colloid seems to be intermediate in this respect; it is neither so protracted as the very slow or chronic cases of Scirrhus, nor does it ever run its course so quickly as the more rapid or acute ones.

Frequency and Mortality.—Judging from our own Registration tables during the last five years, it would seem that a mean number of 2644 persons is annually cut off by carcinoma in England and Wales, or as nearly as possible 176 of every million alive in the country; and that 8045 per million of all deaths are owing to this disease. "If we suppose the disease to be in all instances necessarily fatal, and of the mean *duration* of three years and a quarter, it will follow that the number of persons, suffering from cancer in England and Wales at any given moment, averages 8595."

It has been supposed by M. Tanchou and others that the frequency of Carcinoma had been decidedly on the increase in Paris between the years 1830 and 1840; and M. Rigoni Stern has recently attempted to shew that, for the last 80 years, there has been a marked and steady increase in the disease (especially of the uterus) at Verona; but the calculations of these gentlemen are far from being at all satisfactory, much less are they conclusive, upon this point.

Etiology.—In spite of many assertions, in olden times at least, to the contrary, there is no satisfactory instance on record of carcinoma having ever been transmitted from one individual to another by infection, contagion, the direct inoculation of cancerous virus, or even the injection of this virus into the veins (of an animal.) The occurrence of any malignant ulceration of the penis in men, who have long had intercourse with women labouring under cancer of the cervix uteri, is very rare indeed; so much so, that it is very questionable whether we can ever justly regard the two affections as standing to each other in the relation of cause and effect.

That the offspring of those, who have laboured under Cancer, are more liable than others to the development of the disease is a position, which, if not absolutely proved by the data which we at present possess, is at

least highly probable. The family of Napoleon exemplifies the fact; himself, his father, and his sister Caroline, fell victims to cancer of the stomach. The period of life, at which Cancer proves most frequently fatal, is that between 35 and 70 years of age. Of 3036 cases, set down in the tables of the Registrar-General, 2395 appear to have occurred during that interval. Of the same total number, 199 occurred between 20 and 30 years, and 253 between 70 and 80 years of age. Of the 3036 cases, 728 occurred in the male, and 2308 in the female, sex.* Hitherto it has been very generally asserted and believed that the tendency to cancer is greatest between the 35th and the 50th year of life. It would seem, however, from the more accurate researches of late years, that the mortality goes on steadily increasing until the 70th year, if not somewhat later.† The *mean* age, at the period of death, in 1200 cases of cancer was found by Dr. Walshe to be 57·2 years; in the male sex 59·4, and in the female 56·1 years.

Passing over the (alleged) influence of a variety of exciting causes—the unsatisfactoriness of the data, on which the opinions have been based, being but too obvious—we come to the following remarks on the supposed effects of modes and habits of life in the production of the disease :—

"The foregoing survey, imperfect as it necessarily is, suffices to show that certain regions of the globe are peculiarly exempt from the ravages of cancer. But is this exemption to be really referred to the special influence of climate, or to some concomitant condition? Wherever the disease is particularly rare, it may be remarked that a low state of civilization prevails; wherever social organization is of a highly perfect kind, there cancer flourishes. May we, then, infer that, as has more than once been contended, cancer, like insanity, follows in the wake of civilization: and that as the ferment of a state of high social advancement is among the most active causes of destruction of intellect, so too it plays a prominent part in generating one of the most terrible physical evils to which humanity is subject? To answer this question satisfactorily would require

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* The Paris registers, according to M. Tanchou, give 6967 deaths among females, and 2161 among males.

† The following table of 9118 deaths from cancer, occurring in Paris and its environs from the year 1830 to 1840, confirms the assertion here made.

Ages.	Males.	Females.	Totals.
1 to 10	9	14	23
10 — 20	13	13	26
20 — 30	62	169	231
30 — 40	190	822	1012
40 — 50	339	1636	1975
50 — 60	488	1620	2108
60 — 70	598	1469	2067
70 — 80	398	917	1315
80 — 90	62	273	335
90—100	4	22	26
Totals.	2163	6955	9118

documents which are at present not to be had;—but the bias of evidence is most certainly in favour of the affirmative. And it is curious that even the lower animals appear to acknowledge a somewhat analogous influence; it will presently be seen that they are much more subject to the disease when in a state of domestication than in their natural wild condition." P. 161.

As far as we can judge from the researches which have been hitherto made, it would seem that town-life is not more favorable to the development of cancerous disease than country-life; in spite of the counter-assertion of M. Breschet. Nay, it has been asserted that the ratio of the mortality from this cause in the country is actually higher than that in cities and large towns. Grief and other depressing mental emotions have very generally been regarded as predisposing causes of cancerous disease. Cancer is far from being uncommon in many of the lower animals: we have already alluded to this point, in our review of Heusinger's work on Comparative Pathology.

Diagnosis.—Under this head we shall briefly notice the other adventitious growths and structures, with which Carcinoma—including encephaloid, scirrhus, and colloid—has been often associated and confounded. It must be remembered that the genuine character or peculiarity of Carcinoma is its property of infiltrating the tissues in which it is developed, and eventually of contaminating the entire system: not so with the following formations.

1. Compound Cystoid Tumours, such as are so often seen in the ovary in cases of (what is erroneously called) encysted dropsy of this organ, have been deemed and termed malignant; yet there cannot be a reasonable doubt, says our author, but that they are quite unconnected with cancer, notwithstanding the assertion to the contrary of M. Cruveilhier in France, and of Dr. Hodgkin in this country. That a deposition of encephaloid or scirrhous matter may take place in the cysts of the diseased ovary, may be admitted (as we have previously remarked,) without recognising any primary or essential malignancy in the ovarian disease. Dr. Walshe, after pointing out several inconsistencies in the views of the French pathologist, summarily disposes of those of the English one in the following terms:—

"Dr. Hodgkin on his part, assuming that the compound ovarian cyst is the type of cancerous structure, is obliged to include the two forms of disease in the same anatomical category; he considers that there is in fact 'no appreciable difference either in the structure and arrangement of the cysts of gum cancer and encysted ovary, or in the composition of their contents.' (Op. cit., p. 291.) Nevertheless he formally denies the 'malignant' character of the compound ovarian cyst. Now he elsewhere (e. g., p. 263) distinctly makes the presence of the cystoid arrangement a test of 'malignity,' but, as the disease of the ovary in question possesses this arrangement in the most palpable manner, it follows that it is 'malignant:' hence the same formation is at once 'malignant' and 'non-malignant.' For my own part, I have not the slightest difficulty in rejecting compound cysts from the genus Cancer: where pathology is made the co-groundwork of classification with anatomy, this could not be otherwise." P. 179.

2. The fibrous Growths or Tumours, which are not unfrequently developed in the substance or under the serous or mucous surfaces of the

uterus, have been very differently viewed by different pathologists. By many, and these too of the highest authority, they have been regarded as utterly unconnected with cancerous development, and incapable of taking on the peculiar characters of carcinoma. Dupuytren, on the other hand, maintained that they frequently undergo true cancerous degeneration; while Dr. Hodgkin, and, following him, Dr. Ashwell view them as strictly and truly "scirrhous malignant growths," "genuine cancerous productions." On this disputed question of practical pathology, our author, while unwilling to deny that fibrous tumours *may* ever become truly cancerous, distinctly states that he has never met with an instance of the change: the case, therefore, is one of extreme rarity, if indeed it is ever observed. That Dupuytren mistook certain fungating and intractable sores of the uterus for genuine cancerous ulceration, is now generally admitted. The following tabular view has been drawn up by our author to exhibit the prominent distinctive characters between Fibrous and Scirrhous tumours, and to shew the fallacy of the views entertained by Drs. Ashwell and Hodgkin.

FIBROUS TUMOURS.	SCIRRHOUS TUMOURS.
Frequently attain enormous bulk.	Rarely, if ever, while simple and in the purely tuberous form, exceed an orange in size.
Naturally assume a globular shape, and are of even outline.	Have a tendency to flattened shape, and more or less uneven outline, when they have attained any size.
Frequently occur in some numbers in the same organ; rarely in several organs of the same individual.	Are commonly solitary.
A curvilinear and concentric arrangement predominates in the fibrous stroma.	The fibriform substance, which forms the stroma of scirrhus, is frequently arranged almost rectilinearly.
Submitted to pressure, do not yield a thin whitish fluid.	Submitted to pressure, yield a thin whitish fluid.
Are comparatively opaque.	Thin slices especially have a more or less transparent aspect.
Their essential microscopical element is fibrous, having the strongest similarity to those of natural fibrous tissue: cells are not to be descried.	Their essential microscopical elements are cells and granules.
Belong to the class of growths yielding gelatin.	Belong to the class of protein-growths.
Continuousness of their substance with surrounding structures is an accidental and rare condition.	The tendency to become continuous with and infiltrate surrounding tissues is one of their most strongly marked characters.
Frequently become the seat of calcareous ossiform-looking deposit.	I have never seen a specimen of true scirrhus, having ossiform-looking deposit in its interior, (so-called 'ossification,') unless when the tumour sprang from some part of the skeleton. And even this is, in the case of scirrhous cancer, excessively rare.

FIBROUS TUMOURS.	SCIRRHOUS TUMOURS.
Unless when producing serious local irritative action (itself a consequence commonly of their mechanical influence on surrounding parts,) they do not affect the constitution.	Produce deep constitutional effects *per se*, and independently of all mechanical influence.
Unless under the last-mentioned circumstances, do not become the seat of softening.	Undergo softening as an attribute of their existence.
If partially removed, reproduction takes place, but of precisely the same substance as the original mass.	If partially removed, reproduction follows, but most commonly of a different species of cancer—the encephaloid.
If a fibrous tumour be removed completely, development of similar growths in distant parts does not ensue.	If totally and completely removed, development of cancerous products in other localities does, in a large proportion of cases, occur.
Unless when the seat of irritative action and softening, they do not excite irritation in the communicating lymphatic system: this irritation is never of a specific character.	Excite irritation in the lymphatic system, before any obvious local irritative symptoms have set in: this irritation is of specific character, leading to development of substance in the glands of the same genus as the original growth.
Rarely, if ever (and certainly with less frequency than any of the natural vascularized tissues,) present in their interior or on their periphery, small or large masses of scirrhous, encephaloid or colloid cancer.	Frequently present, either on their interior or at their periphery, small or large masses of the two other species of cancer; commonly of encephaloid, more rarely of colloid.

3. *Erectile Tumours.*—Cruveilhier has carried his peculiar notions respecting the seat of carcinoma in the veins to such an extravagant length that he actually asserts that "cancer is a varicose tissue, the meshes of which are filled with cancerous juice; and that varicose or venous erectile tissue is a cancerous structure, the meshes of which are filled with blood." That erectile structures (nævus maternus, aneurism by anastomosis, &c.,) like compound cystoid tumours, are sometimes apt to become the seat of carcinomatous development, and consequently to give rise to all the constitutional symptoms of cancerous cachexy, cannot indeed be disputed; but these circumstances do not warrant the doctrine of the identity, or indeed of any close analogy between the morbid formations in question. In France, the term, "fungus hæmatodes," was long indiscriminately applied to fungating encephaloid, and to erectile vascular tumours. This circumstance will in part account for the erroneous notions that still prevail among some of the continental writers. We may here mention that, some years ago, Dr. Hake of Brighton published a work to prove that carcinomatous and most other morbid growths essentially consist in a varicose state of the capillary vessels. Our readers will find an account of it in the No. of this Review for October 1839.

4. Enchondroma exhibits many of the outward features of Colloid.

"The spherical form, the uniform size, the thinness of the walls, and the semi-transparent aspect of the contents of the loculi in each, approximate these

formations in point of external characters. But the following distinctions exist. On a section of fully developed colloid cancer the walls of the loculi appear sharply cut across at right angles with their plane; it is on the contrary extremely common to find the walls of the loculi of enchondroma exhibiting flat and extensive surfaces to the eye, as though the loculi had been opened to a small extent only. This probably depends upon a difference in amount of elasticity of the structure forming the walls in both growths. Colloid cancer does not originate in bone, which is the chosen seat of enchondroma. Enchondroma never infiltrates adjacent structures; colloid frequently does so affect them. Colloid never contains patches of bone, enchondroma does so almost invariably. Enchondroma yields chondrin, or in rare cases glutin; colloid furnishes no gelatin, and belongs to the protein class of growths. Colloid affects the constitution *per se*; enchondroma simply (in the rare instances in which it ever does so) in the same manner as fibrous tumors." P. 182–3.

These observations may be compared with what has been already said under the head of Colloid.

5. Melanosis—under which term are included all accumulations of black colouring matter, whether fluid or solid, in normal or abnormal structures—has been regarded, by some of the leading pathologists of the day, as of a strictly cancerous nature. Dr. Walshe impugns the correctness of this opinion upon the following grounds:—

"1. That the melanic pigment should in itself constitute cancer is an absurdity: it never even forms a stroma, as the cells continue permanently free. 2. The stroma of many melanic tumors is perfectly distinct in its physical, chemical, and microscopical characters from all cancerous stromata. 3. Many melanic tumors do not contain cancerous juice. 4. The microscopical characters of the pigment-cells and granules are the same in all kinds of growth in which they occur. 5. Melanic tumors, when no ordinary cancerous elements exist in them, cause no local or general symptoms, except those dependent on the size and seat of the growth. 6. When melanic tumors produce the local or general symptoms of cancer, they are found either to be composed of encephaloid or scirrhus, wholly or in part, impregnated with black pigment. 7. Neither the local nor general symptoms produced by carcinoma are modified in cases in which melanic matter is found to pervade it. 8. The circumstance that melanosis is rarely solitary, is strongly insisted on by Cruveilhier, as a ground for ranking it with cancer. But tubercle multiplies similarly, yet assuredly tubercle is not cancer." P. 184.

The opinion now generally entertained as to the cause of Melanosis is, that the pigmentary carbonaceous matter, which is naturally employed to colour different parts of the body, and more especially the hair, has become accumulated in the blood, and is gradually deposited in different parts and structures, abnormal as well as normal, of the body. The circumstance of melanotic deposits being much more frequent in grey and white horses than in those of a bay, brown or black colour, gives much probability to this opinion. Dr. Carswell's writings may be consulted with most advantage upon this pathological question.

6. Tubercle.—There is certainly no alliance, but, it would rather seem, an actual repulsion, between cancerous formations and those of a truly tuberculous character. The two rarely co-exist in the same individual; and moreover the organs, usually the seat of the one, are not those most frequently infested with the other. Of 104 cases of fatal cancerous disease, alluded to by Dr. Walshe, in seven only were the anatomical ap-

pearances of Phthisis discovered upon dissection. In five of these seven cases, the cancerous affection was Scirrhus; in the remaining two, it was Encephaloid, of which there were no fewer than 72 examples. This circumstance alone suffices to show the fallacy of the opinion of those writers, who have maintained that there is an alliance or connection between encephaloid and scrofulous disease. That cancerous formations and tuberculous deposits do occasionally exist together, Dr. W. does not deny; but he suggests that what has in many such cases been described as tuberculous matter, was really not so. The mere accumulation of fat in certain parts of an encephaloid growth will give these parts all the appearance of tuberculous deposition. In other cases, this phenomenon may occur in the way described in the following passage:—

"A partial or general *yellowish tint* is sometimes produced in carcinoma, either, as in cases referred to by Laennec and Dr. Graves, by impregnation with the colouring matter of the bile; or, as is more usual, and, has been just seen, by the changes undergone in the diseased mass in the vicinity of effused blood, resembling those observed in subcutaneous ecchymosis and cerebral hæmorrhage. Dr. Hodgkin expresses his belief, that the yellow tint occurs in the oldest parts of these growths; a remark which I have not been able to confirm. But there is much justness in the observation, that encephaloid thus discoloured bears some resemblance to tuberculous matter: a similarity which has caused the former to be sometimes mistaken for the latter." P. 82.

We must here draw to a close our observations on the pathological history of Cancer, and trust that we may have succeeded in presenting to the reader a fair and intelligible view of the more prominent and best ascertained phenomena of this terrible malady. What now remains is to notice briefly its *Treatment;* not, alas! that we have any thing new or very satisfactory to communicate upon this all-important subject; but in order to complete our general *aperçu* of the disease, and to point out the chief objects which the medical man ought to have in view in attempting to grapple with it. It has long been a matter of dispute whether carcinoma should be regarded *ab initio* as a local mischief eventually contaminating the whole system, or as a constitutional taint, manifested at first (it may be, for a length of time) by the formation of a morbid growth in one part of the body. The latter view is, as the reader will have been prepared to expect, that which is adopted by our author, who goes so far as to say that the following proposition—*a cancerous tumour under all circumstances, even should it remain single and stationary for years, is but the local evidence of a general vitiation of the system*—possesses "almost the certainty of mathematical demonstration." This language is strong; stronger, we suspect, than facts will warrant. The chief argument, be it remembered, adduced in its favour, is only one derived from the analogy of tuberculous deposits; "which" (although invariably proceeding from a constitutional cachexy and never from a merely local cause) "may exist for years at the summit of a lung, and every other organ may remain free to the last from the disease." But were we not taught by Dr. Walshe himself, at the very outset of his enquiry, to draw a line of marked discrimination between cell-matter that is altogether incapable of life and which is liable too to become converted into an amorphous and inorganic substance, and the development of those morbid cells which are possessed

of a truly vegetative life, like those of Cancerous growths? Indeed, the whole of our author's remarks on the "Nature of Cancer" appear to us to be characterized much more by an ingenious spirit of speculation than by one of legitimate deduction from ascertained phenomena. For example, he takes for granted that "the blood and solids of the body are specially modified," *i. e.*, altered from the healthy standard; although he admits, at the same time, that micro-chemical observations have hitherto completely failed in demonstrating any primary modification of these constituents of the living frame.—The exudation of the morbid blastemal fluid is supposed to take place "in consequence of local injury* or otherwise;" and, on this fluid, the system is presumed to have impressed an intrinsic power of vegetation.

"This vegetating faculty," continues Dr. W. "of the exudation reacts on the system by constantly draining it of a portion of its nutrient materials,—the progeny feeds upon the parent organism, and the first phasis of evolution is accomplished. But the natural tissues have been so modified in properties by the constitutional state, that they are incapable of resisting the encroachments of the vegetating exudation, and hence become the seat of atrophous, ulcerative, and other modes of destruction. Discharges of various kinds now still further drain the system of its fluids, and impair its vital energies; and the second phasis is established. Meanwhile secondary alteration of the blood is effected; this fluid becomes the vehicle for the circulation through the system of elements possessed of a germinating force,—these stagnate, are deposited, and new local vegetations spring into life and activity. The same series of phenomena is again and again gone through; until the system, drained of its reparative fluids in feeding exudations and supplying discharges, exhausted of almost every drop of pure blood through the influence of secondary cancerous impregnation, paralysed in its nervous energies by physical anguish and deficiency of pabulum, sinks in the struggle against the superior powers of the new existences it has created,—and in death is closed the third phasis of the disease." P. 190.

Treatment.—The Chapter upon this most important subject is very full and complete. Dr. Walshe has taken great pains to examine the alleged virtues of almost every remedy, and of every plan of medication that has been proposed. The details may perhaps be considered tedious and perplexing from their very multiplicity, and from the too frequent insufficiency of trustworthy data that have at different times been published; but, as the present Treatise has been evidently designed to furnish a complete history of Cancer, we must not find fault with our author. We shall rapidly follow him in his remarks. Under the head of *prophylactic treatment*,

* It may not be unworthy of notice, that the formation of hydatidic tumours is not unfrequently attributed by patients themselves to a blow or other injury upon the part. This circumstance will be found to be prominently alluded to by Klencke, whose recent work we reviewed in our last Number. We must confess that the idea—for it is nothing but a mere idea—keeps haunting our mind, that a sort of analogy may be traced between the development of hydatids, and that of cancerous tumours. Nor can we admit the conclusiveness of our author's objection to this hypothesis, "that no one has ever seen the imagined hydatids." May we not ask, with equal force, who has seen the blastemal fluid of cancer, or who has succeeded in detecting the modification of the blood that is supposed to exist?

Dr. W. lays it down as a rule that no mother, "whose relatives have suffered from cancerous diseases," ought to suckle her children. We greatly doubt the wisdom, and certainly do not believe in the necessity, of so wide-spread and sweeping an injunction as this; more especially when it is considered that it is utterly out of the power of a woman, in the humbler classes, to procure "a vigorous nurse of healthy family" to suckle her offspring. If this practice of prohibiting suckling to women in whom there may be any hereditary tendency, however small or remote, to cancer, scrofula, (as recommended by M. Lugol,) and other constitutional maladies, were once to be generally adopted, how is a large portion of the infants of the poor to be reared at all? Medical men may be assured that hereditary maladies or diseased states of the system are not so very readily transmitted by the maternal milk, provided, all the while, the general health of the nurse be tolerably robust, and she do not commit the too common error of excessive or over-prolonged suckling. Much even may be done to correct, or compensate for, the faulty condition of a woman's milk by partly feeding the child, as well as by the judicious regulation of the mother's diet: but we cannot enlarge upon this subject at present.

Another hygienic suggestion of Dr. W. in reference to the children of those families in which there is believed to be any tendency to cancerous disease is, that the sons should not be educated to any profession or occupation involving a great deal of anxiety and care. Hence the bar, medicine, diplomacy, &c., should, he says, be avoided; and "the speculations in which merchants, bankers, stock-brokers, &c., are so prone to indulge, ought, if these occupations be embraced, to be systematically shunned." Females, our benevolent author adds, should not become governesses. *It* is all very well to say so; but what are the poor creatures to do; the life of a governess is surely better, and quite as free of disquietude and distress as that of a sempstress.

The following advice is of a more practicable character:—

"Particular organs may have their special prophylaxis. The connection of cancer of the penis with congenital phymosis is established with sufficient certainty to justify early circumcision in individuals, thus conformed, belonging to a cancerous family. Again, as certain morbid formations (*e. g.*, erectile and compound cystoid growths) exhibit more than an average amount of liability to become cancerous, (I mean, through the development of scirrhus or encephaloid in their substance,) the removal of the former may be looked upon as prophylactic against the latter." P. 193.

The vast variety of *internal remedies*, that have been recommended at different times, for the cure of Cancer, is in itself sufficient evidence of the inefficacy of them all. If any one of them were possessed of real, positive, and substantial curative properties, we should not still be groping in the dark, as most assuredly we are. Let us cast our eyes over a few of them.

Conium has been immoderately praised by some writers, and unjustly undervalued by others. That its use, however prolonged, has ever effected a cure of genuine cancerous disease is more than doubtful; but that it may sometimes arrest its progress, as well as alleviate existing pain, cannot reasonably be denied. Recamier advises it to be taken in combination

with the extract of sarsaparilla. Dr. Walshe has found it relieve pain and irritability, especially in cases of cancer of the stomach. Belladonna, Aconite, Stramonium, and other narcotics have been, at some time or another, recommended; but we possess no satisfactory evidence of any decided benefit, beyond the alleviation of pain, having ever been produced by their use.

Various preparations of Iron have been tried in the treatment of cancerous disease; and apparently with seeming advantage in some cases. Our author recommends the iodide of this metal in preference to other preparations.

Mercury, even in minute doses, should generally be avoided: when carried to salivation, it is always injurious.—Iodine, externally and internally used, has unquestionably been found serviceable in a few cases: even a cure, it has been asserted by more than one respectable writer, has been effected by its employment. Dr. Walshe testifies to the truth of this statement from his own observation; and he adduces the recorded experience of Dr. Ashwell and Mr. Travers to the same effect. The remarks of the latter of these gentlemen deserve particular notice. "By an indolent scirrhus I mean an incompressible permanent tumor, possessing for many years no distinguishing character of that disease; but in a deranged state of health assuming its genuine character, and at a particular period of life breaking up into an actual cancer. I do not entertain a doubt that such a tumor *may be, and often is, absorbed in its first stage, and need not therefore of necessity follow this course.* I feel assured that most of the hard breasts of young and middle-aged women admit of being reduced by the iodine or the mercurial ointment, if early resorted to, and steadily persevered in, *having often succeeded in procuring their absorption by such means, when, from the characters they presented, I should otherwise have felt compelled to urge their removal by operation. . . . . Nothing is more certain than the susceptibility of absorption in many such tumors at an early stage of their existence.* Dr. Walshe particularly enjoins that the ointment applied should not excite any irritation of the skin. He prefers the iodide of lead ointment (℥j. to ℥j. of lard,) as altogether unirritating, and as more discutient than any other. It should be smeared in very gently, for several minutes at a time, twice daily.

Arsenic unquestionably exerts, internally administered, a certain degree of salutary influence in some cases of scirrhous disease. Dr. Walshe appears to prefer the iodide—introduced into medicine by Dr. A. T. Thomson—in doses of from 1-16th to 1-12th of a grain twice daily, two hours after eating. The local symptoms often subside, and the general health improves. As to a real cure being ever effected, that is quite a different matter.

External Remedies.—Occasional application of *leeches*, in the neighbourhood of the affected part, is often of decided benefit; but "the obstistinate and senseless reiteration of leeching can only tend to weaken the patient, and sooner break up the constitution."—(Burns.) Of late years, several surgical writers have recommended the ligature of the main artery proceeding to a cancerous part, (the spermatic artery, for example, in cases of diseased testis;) but the results of this practice do not encourage its repetition. We have already spoken of the effects of the external appli-

cation of *Iodine*. The benefit to be sometimes derived in the treatment of cancerous tumours, from the methodic and regulated application of *compression*, was first clearly pointed out by the late Mr. Samuel Young. Since his time, the practice has been tried and approved of by many competent authorities. Mr. Travers has known tumours (such as those described in the extract previously given) "gradually reduced, and at length absorbed by equal and persevering compression, as by strips of soap and adhesive plaster, or, what is better, by an elastic roller passed many times round the chest, with layers of the Amadou smoothly interposed between the turns of the roller." M. Recamier has employed compression upon a very large scale, and the more important part of his results is as follows: "Of one hundred cancerous patients, sixteen appeared to be incurable, and underwent only a palliative treatment: thirty were completely cured by compression alone, and twenty-one derived considerable benefit from it: fifteen were radically cured by extirpation alone, or chiefly by extirpation and pressure combined, and six by compression and cauterisation: in the twelve remaining cases the disease resisted all the means employed." MM. Blizard and Masson have published three cases, and M. Carron du Villards three others,—in all of which irregularly nodular scirrhi, the seats of lancinating pain, &c., were removed by compression. Dr. A. L. J. Bayle (loc. cit.) gives, as the general results in 127 recorded cases, 71 cures, 26 instances of improvement, 30 of total failure. These results, the most favourable on the whole that can be adduced in favour of any mode of treatment, bear scrutiny of the severest kind. It is no doubt true, that, in some of the cases alleged to be cancerous, neither of the anatomical species of that affection existed: but it is on the other hand perfectly unquestionable that many of the absorbed growths were not only actually *scirrhous*, but had already become the seat of ulceration, when submitted to compression."

By far the best mode, in our author's opinion, of applying regulated compression, is by means of the ingenious apparatus contrived by Dr. Neil Arnott—to whom humanity at large was already so deeply indebted for more than one beautiful and most useful application of science to the relief of the suffering and afflicted. The inward satisfaction that he must experience in the consciousness of having been so great a benefactor of his race must be a much higher reward, to a man of his large and generous philanthropy, than all that wealth can procure or prices bestow.

But we must be on our guard against anticipating over-much from this, or indeed any other, outward application in the treatment of any such disease as Cancer. Would that the following flattering description held true in many cases!—

"The effects produced by pressure are removal of existing adhesions, total cessation of pain, disappearance of swelling in the communicating lymphatic glands, gradual reduction of bulky masses to small, hard, flat patches or rounded nodules (which appear to be, both locally and generally, perfectly innocuous,) and in the most favourable cases total removal of the morbid production. The relief of pain afforded by the instrument is, without exaggeration, almost marvellous; this effect is insured by the peculiar softness and other properties of the air-cushion, the medium through which the pressure of the spring is transmitted to the surface. Females unable to obtain sleep even from enormous

doses of laudanum, cease instantaneously to suffer on its application; and sleep thenceforth, as though they were perfectly free from the disease." P. 211.

Dr. Walshe carries his admiration so far as to think that pressure on Dr. Arnott's system is applicable not only when the cancerous formation is situated over a bone, and where therefore a steady compression may be kept up, but even in other cases in which we should have deemed it quite inadmissible. "I see no reason," says he, "why cancer of the testicle might not be treated thus;—and gentle pressure on this plan deserves a trial in certain cases of cancer of internal parts, (it would surely relieve pain,) provided the general functional relations of those parts do not interfere (and they will often not do so) with the adoption of such pressure."

He has related the particulars of *one* case of a tumour of the mamma, presenting all the features of genuine scirrhus, in which a cure was effected by the use of the air-cushion compressor continued for between nine and ten months, the internal administration of the iodide of arsenic, and, (towards the close of the treatment,) the external application of the iodide of lead ointment. Such is the treatment which, in our present state of knowledge, seems to promise the best chance of retarding, perhaps even of suspending, the progress of certain forms of carcinomatous disease; due attention being all the while paid, as a matter of course, to keep the nutritive and assimilative functions in a healthy condition, and to preserve the mind from anxiety and distress. Perhaps it would be judicious practice, in almost every case, to establish an artificial drain in some part by seton or issue; the effects of this remedy, in many chronic diseases, are occasionally of most unexpected advantage. Whether a medical man can rationally allow himself to entertain even a shadow of hope that a *specific* for cancer will ever be found, we shall not presume to determine. The reasoning of Dr. Walshe, on this point, is anything but satisfactory to our mind; nor can we agree with him in his advice, whether as it respects Cancer or Phthisis—for it is in reference to these two diseases that his remarks apply—that "the efforts of those who are placed in a position fitted for the purpose, should be unceasing in search of such a medicine; for nothing can be more unphilosophical than to conclude that it does not exist, because it has not yet been found.

Dr. Walshe canvasses at considerable length the important question as to the propriety of removing cancerous growths by surgical operation. This part of his work may be consulted by surgeons with great advantage. He demonstrates with, alas! too great success, the unsatisfactoriness of the results of excision, even under the most favourable circumstances; and he very nearly adopts the opinion enounced nearly 3000 years ago by the Father of Medicine, that even "occult" cancers should not be interfered with; experience having shown that persons submitted to treatment perish more rapidly than those who have not been thus meddled with—'Οκόσοισι κρυπτοὶ καρκινοι γιγνονται, μὴ θεραπεύειν βέλτιον. θεραπευόμενοι γὰρ ἀπόλλυνται ταχέως. μὴ θεραπευόμενοι δὲ πλειω χρὸνον διατελοῦσι—Aphor. vi., 83. This sage remark might be applied, with no inconsiderable truth, to more diseases, we fear, than Cancer.

There is still some difference of opinion among medical men, as to the period or stage of the disease at which an operation may be undertaken with the best chances of success. Most surgeons recommend early ex-

tirpation upon the ground that the longer that the primary local malady exists, the greater is the likelihood of lymphatic contamination, and of other evils supervening. It is, however, to be remembered, that the advocates of the practice invariably start from the notion of the absolute necessity of an operation in all cases; and we have already seen reason to question the propriety of this opinion. That in many cases, where a scirrhous tumour might have remained stationary and dormant for a multitude of years if not interfered with, the disease has broke out with aggravated violence after the performance of an operation, cannot be doubted; it is therefore quite unnecessary to adduce any illustrations of the fact.

"Again, 'it has been stated on high authority,' says Mr. J. Burns, (Op. cit., t. i., p. 357,) 'that a woman has a better chance of a complete cure if the operation have been performed late than early, provided the disease continue limited, as there is a greater probability, in that case, that it remains local.' This seeming paradox (of which Galen may be regarded as the originator, for he taught that only fully formed cancers, and not those still occult, should be interfered with, with the cautery or knife,) has found defenders, indeed, in not a few practitioners: and recently MM. Hervez de Chegoin and Tanchou have warmly espoused it. According to the latter, cancer appears to localise itself with the progress of time under the influence of treatment, and loses proportionally its influence on the system; and so (as a matter of fact) cancer of the breast is known occasionally to undergo spontaneous suspension of progress, whereas M. Tanchou doubts the existence of a single case of real cancer having been cured by *early* operation. Some statistical results, published among the facts collected by M. Leroy d'Etiolles (loc. cit.) give unexpected support to the notion of the inutility of early, as contradistinguished to late, operation. Of 801 extirpations of cancers, 117 were performed less than a year after the appearance of the tumor; of these 117 operations, 61 (or 52·1 per 100) were followed by reproduction within the course of the first year succeeding the use of the knife. And it is to be remarked that, at the time the author wrote, a full year had not elapsed since 112 of the 117 operations had been performed. On the other hand, among the operations not followed by reproduction, there were 52 in which the morbid growth had, when removed, existed for five years. Finally, after careful examination of all the points and available documents bearing upon the question under discussion, I feel myself warranted in establishing the following proposition:—*Of a given number of cancerous individuals, a considerable larger proportion will be saved from untimely death under the influence of well devised and judiciously sustained treatment, aided, if this become necessary, by extirpation performed at a comparatively late period, than will recover under the influence of the operation (unpreceded by methodised treatment) effected at the very earliest possible stage of local development.*" P. 239.

Such is the practical conclusion to which our author, after all his zealous investigation of the subject, has arrived. Many will differ from him, we believe; still, the opinion of one who has examined the history of the disease in all its bearings with so much attention, cannot but have considerable weight with the profession. We perhaps cannot do better than here recal to the mind of our readers the rules which Sir Benjamin Brodie has pointed out, for the guidance of the surgeon, in the extirpation of malignant tumours: they were published in the Lancet a year or two ago.

"When there is a general conversion of the glandular structure of the breast itself into a scirrhous structure, there being no well-defined margin, an operation never succeeds, but rather hastens the progress of the disease. When the skin

is the seat of scirrhous tubercles, disseminated here and there around the tumour, or has become thickened and brawny, the pores being enlarged as if they were seen through a magnifying glass, there is no chance of making a permanent cure. When the nipple is retracted, the case is very unfavourable for an operation. In this case we may suspect that the disease has extended to the skin; and, if the skin in the neighbourhood of the nipple be examined, there will generally be found indications of disease in it. A dimple, or indentation over the tumour, is also an indication of the skin being affected, and renders the case unfavourable for operation. When the glands in the axilla are enlarged, not from simple irritation, but from cancerous affection, no ultimate cure can be expected. When the scirrhous tumour adheres to the pectoral muscle of the ribs, and when the skin is ulcerated, there is no chance of a permanent cure from operation. When there is evidence of disease in the liver, the lungs, the womb, or other internal organ, no permanent benefit can result from the removal of the breast. When all these cases are taken away, there are very few left in which it is right to operate."

What then are the cases in which amputation of a scirrhous mamma may be deemed proper? Sir Benjamin gives the following reply:—

"When the skin is perfectly sound, when the nipple is not retracted, when there is no diseased gland in the axilla, when there is no sign of internal mischief, when there is no adhesion of the breast to the parts below, and when the patient is not very much advanced in life, I should say that there is a reasonable chance of an operation effecting a cure. I do not intend to say that, in all the excepted cases, there will be a permanent cure;—far from it; but there will be in some instances; and the chance of it may be sufficient to warrant you in recommending the patient to submit to the operation. I have the satisfaction of knowing that several persons, on whom I have operated under these circumstances, are now alive and well, but who would certainly (!) have been dead long since, had I not had recourse to it."

After the long and careful analysis which we have given of (the first half) Dr. Walshe's work, it only remains for us to return him our best thanks for the pleasure and instruction which we have received from its perusal. It is a volume of high and substantial merit, evincing on the part of the author an intimate acquaintance with all that has been written upon the subject of Cancer, and, at the same time, no ordinary acumen in sifting the opinions of others as well as in expounding and illustrating his own. Every medical man, who wishes to keep himself up to the existing standard of pathological science, must read it; and most who do this will, we feel assured, add it to their libraries, as an important work of reference.

I. A PRACTICAL TREATISE ON ABDOMINAL HERNIA. By *Thomas Pridgin Teale*, F.L.S., Surgeon to the Leeds General Infirmary. With numerous Illustrations. Octavo, pp. 380. London, 1846.

II. A SYSTEM OF SURGERY. By *J. M. Chelius*. Translated by *John F. South*. Part IX. Ruptures. 1846.

WE must dissent from Mr. Teale's opinion, that an opening exists for a new work on hernia, bearing the character of a text-book for students and of reference for practitioners. Any elucidation of the few debateable points in the nature and management of this affection from the pen of a practical surgeon will at all times be acceptable; but another general work upon the subject was certainly not requisite for those having access to the books of Lawrence and Astley Cooper, and the Surgical Dictionary of Samuel Cooper. It seems, however, that the author originally prepared his work for the Cyclopædia of Surgery, of which it would have formed an appropriate portion; and, as that publication (to the regret of those who perused or purchased its early numbers) is defunct, he has brought it out in a separate form. It may be thought rather the author's and publisher's than the reviewer's business to decide whether a sound discretion has been used in issuing it as a substantive work: but in this opinion we can scarcely agree, as we consider our function consists not only in indicating what is good, valuable, or the contrary, in new works, but also in informing our readers how far such information has superseded that contained in the books they already possess. The sale of medical works of original research is already far too limited to allow of the indiscriminate recommendation of such as approach the character of compilations on the score of mere repetition of information, however important and essential. Supposing a new text-book on Hernia had been a *desideratum*, we are free to admit Mr. Teale has produced a very good one. Copiousness of detail does not prevent succinctness and clearness of description, the various difficulties of diagnosis are carefully appreciated, and the different means of relief judiciously set forth.

We are pleased to find that South (we follow his own invariable rule of omitting the ordinary prefix) has hitherto avoided the want of punctuality, so common now-a-days with authors of books published in parts, and so annoying to their readers, and we hope the work will meet with a commensurate sale. It deserves it on account of the industry and ability with which it is composed; although, when we see the large proportion of the notes compared to the text, we cannot but again regret that the translator did not write an original work, in the place of patching up the somewhat imperfect original.

We will advert to the opinions of these authors upon one or two of the most important points; and first, upon—

1. *The Operation without opening the Sac.*—Although this was performed by Petit so long ago as 1718, and has been practised by Monro and Cooper

in large herniæ, yet it is to Key that we are indebted for placing it in its present condition in professional estimation. Indeed, according to Mr. South, Sir A. Cooper was not in the habit of performing this operation during the latter period of his career, nor does he recommend it in his Lectures as he did in the early editions of his work on Hernia. Key's recommendation of it is founded chiefly upon the mischief he believes arises from the exposure of the inflamed and strangulated bowel to the air and light, and to handling. When peritonitis ensues upon an operation, it is found to spread from the strangulated portion of the bowel to the rest of the peritoneum, and not from the incisions of the sac. Lawrence, however, believes the peritonitis is induced, not by exposure of the intestine, but by the pressure made by the stricture for hours, or perhaps even for days. South agrees with this latter view, and adds, "But I think it impossible to doubt that an additional cause is to be found in the unwarrantable, violent, and repeated squeezing which the rupture suffers during the use of the *taxis;* so that one is only astonished that the gut is so rarely burst, and the patient destroyed in a few hours." The possibly gangrenous condition of the intestine or omentum is the great objection to this operation, and its recommendation must much depend upon the belief whether such a state of the contents of the sac is always capable of detection. Mr. Key is of opinion that parts approaching to the state of gangrene would be frequently restored if returned without the exposure to the air, &c., incidental to opening the sac. Moreover, he believes that gangrene may almost always be detected when it exists. South is of a different opinion.

"I cannot agree with Key, 'that the ordinary characters of a completely sphacelated portion of bowel are distinct enough,' for I am quite sure I have seen them all existing more than once or twice without any gangrene, but simply depending upon the unwarrantable violence used in attempting to return the rupture. But I do agree with him, that 'it sometimes happens that no such change takes place in the swelling, and then the evidence of gangrene is much more equivocal.' It is by no means infrequent to find an intestine mortified, although the time it has been strangulated is short, and not the slightest external sign leads to the presumption of its condition; as, on the contrary, it now and then happens that the exterior of the swelling is tender, inflamed, doughy, and crackling, from the causes I have just mentioned, and yet the intestine within be healthy, and the patient recover the operation. As regards the loss of elasticity in the swelling, I believe it a very uncertain sign; the intestine may be gangrenous, but the sac full of fluid, as is commonly the case under such circumstances, and then the elasticity remains. The only sign which I think can be relied upon, though even that is doubtful, is when the intestine has burst; then, indeed, although the redness, doughiness, and crackling still remain, the rounding of the swelling subsides, and when a little pressure is made on it a central hollow is produced, and a sense of yielding beneath, very different from the pitting caused by pressure on œdematous cellular tissue.

"From my own personal experience of the division of the stricture external to the sac, I can say nothing, never having performed it. But I do not think so great advantage is gained by not opening the sac as is stated. From all the cases I have observed, either in the practice of others or in my own, I do not think cutting through the hernial sac, and consequently opening the peritoneal cavity, so serious as generally considered. If inflammation of the peritoneum have not been previously set up, either by the rough usage of the rupture, or

by the irritation which a long strangulated or gangrenous gut produces, I cannot understand why making a small opening into the peritoneal cavity should be more dreaded than the long slits, which are now made without compunction, for the removal of diseased ovaria, and so-forth. There are, however, some conditions which even those who advise leaving the sac untouched, admit, require that it should be opened, namely, confinement of the protruded parts by entangling bands, or by adhesion to the sac itself, and a gangrenous state of the bowel. Under all circumstances, therefore, I am still disposed to continue the practice of opening the sac, as I have hitherto done, believing it to be the most safe. I cannot conclude these observations without stating that, I believe much of the fatality of operations for strangulated ruptures depends upon the *improper after-treatment*. I well recollect the time when, as soon as the patient was put to bed, he was dosed with senna and salts, with a view of speedily procuring stools, and, his already irritable bowels being thereby rendered still more irritable, he speedily sank. Although this practice is probably less followed now than formerly, yet I am afraid there is still too great inclination to employ purgatives too early. For a few hours nothing more than a clyster should be given, and not even that, unless the patient be very uneasy in his bowels, and puffed up with wind. Not unfrequently they relieve themselves, and only after 12 or 18 hours is it advisable to give medicine by the mouth, for the purpose of completely clearing the whole intestinal canal. And unless there be any special indication for calomel, I believe that castor oil is the best remedy of all." P. 47.

Mr. Teale entertains a more favorable view of the operation. After adverting to the various arguments, *pro and con*, he observes :—

"My experience certainly justifies me in recommending this mode of operating wherever it is practicable, provided the necessary precautions are taken against incurring the evils to which the operation, when carelessly performed, might be exposed; and, in order to avoid these dangers, it is important to be able in the first place to recognise the symptoms which indicate the occurrence of gangrene, or of a state verging towards it; and, secondly, to guard against employing an improper degree of force for the purpose of replacing the hernia after the stricture has been divided.

"The chief indications of a gangrenous condition of the hernia are derived from the state of the tumor, and from the general condition of the patient. Discoloration of the integument, adhesion of the skin to the deep-seated envelopes, œdema or emphysema of the hernial investments, may generally be considered as indicating that the strangulated viscera are actually gangrenous, or in a state verging upon this condition. But gangrene may exist without being accompanied by these changes in the investments; when, for instance, the contact of the viscera with the sac is prevented by a copious effusion of serum into the latter, and the extension of the inflammation from the viscera to the envelopes delayed, the latter may still present a healthy aspect, even whilst the former are gangrenous; and in such cases, though the local indications of gangrene are necessarily absent, yet the constitutional symptoms will generally serve as a safe guide to the operator; the feeble pulse, the sunken and anxious countenance, and the clammy skin, rarely failing to announce the mischief."

Mr. Key lays great stress upon the transudation of a fetid odour during the operation, and forbids the external division of the sac, unless the absence of this be clearly made out, after all the other envelopes are divided. The condition bordering upon gangrene cannot be detected: but Mr. Teale observes that, we must presume its existence when intense strangulation has continued for many hours, which is most likely to occur in small

herniæ. If, after exposure of the sac and division of the stricture we do not find the viscera recede easily, we must suspect their agglutination to the walls of the sac, which must therefore be opened. If, too, the parts external to the sac do not produce its constriction, this will probably be caused by the neck itself, and incision be required. To obviate the risk of returning a hernia constricted by its sac, violent pressure must be avoided, and Mr. Key recommends only such a degree as would suffice for the reduction of a non-strangulated hernia.

"In conclusion, I would again express my opinion, that the operation without opening the sac ought to be performed in all cases in which it is practicable, unless the local or general symptoms indicate the existence of gangrene or an advanced stage of inflammation. In accordance with this opinion it may be stated, as a general rule, that the operation should be attempted—1st, in most cases of large herniæ, 2nd, in many herniæ of middle size; and 3rd, in but few small herniæ, unless in the earliest stage of strangulation. As it is impossible in most cases to determine with certainty the seat of stricture before operating, the practicability of the operation must generally be doubtful. But, as has already been stated, if the attempt by this operation should fail, the sac may still be opened.

"I am informed by my friend Mr. Key that the advantages of this mode of operating have been fully borne out by his practice, and that he has not met with a single case in which any inconvenience or danger arose from not opening the sac. Mr. Key observes that he meets with but few cases of strangulated hernia, requiring operation, in which it is not desirable to avoid opening the sac, even when, from some circumstance, it is not practicable. Mr. Liston, in an obliging communication with which he has lately favoured me, states that, for several years, he has been in the habit of *trying*, in all cases of *recently* strangulated hernia, when the operation was required, to divide the stricture and return the protruded parts without opening the peritoneal sac. The risk to the patient he considers to be thereby greatly diminished." P. 118.

Mr. Teale gives an analytical table of the 32 cases in which this operation has been performed. Of these, two occurred to himself, five to Mr. Liston, six to Mr. Key, four to Mr. B. Cooper, and the remainder to different practitioners. Twenty-seven patients recovered, four died, and the fate of the other is not stated. Of these, eighteen had femoral herniæ, eleven inguinal, and three umbilical.

2. *Management of the Omentum.*—To some of the recommendations of Chelius his commentator is obliged to enter his protest. Speaking of adhesions of the omentum to the sac, M. C. says, if these occupy a considerable extent, "it must only be divided at the neck of the sac, *surrounded with some linen overspread with cerate*, and when the inflammation had subsided, it should be divided near the abdominal ring." Where there are adhesions between the omentum and the intestine, after the stricture is relieved, "the intestine must be left quiet in its place, *covered with compresses moistened in, and often wetted with, decoction of marsh-mallows.*" Mr. South observes:—

"If the adhesions between the omentum and sac be old and membranous and easily divided, it is advisable to do so, and to return the omentum. But more frequently the adhesions are too short to admit of this: or the surface of the omentum is actually glued to, or so consolidated with, the surface of the sac,

that it cannot be set free without cutting through. I have had two cases of this kind, in which, having returned the gut, after freely dividing the stricture, I have left the adhering omentum undisturbed, and no ill consequences have ensued. But there is a preparation in St. Thomas' Museum, where this practice was pursued, and the gut, after division of the stricture, returned into the belly, yet the symptoms of strangulation continued, and the patient died; and on examination it was found that the omentum formed a tight cord upon the intestine as it lay transversely behind it, on the brim of the pelvis, and completely prevented the passage of the contents of the bowel through it. I do not, therefore, feel certain as to which is the best practice in such cases; but I may state, that my cases which were successful happened after (we cannot see what that has to do with the matter in question) the fatal case just mentioned. I certainly should not be disposed to adopt or recommend the practice proposed by Chelius of separating the adhesions of the neck of the sac, and passing a piece of linen round the omentum, with the purpose of dividing it at a future time, as I should expect that the presence of such extraneous substance would be likely to excite dangerous inflammation." P. 40.

In examining the omentum we must always be careful to ascertain that a small knuckle of intestine is not confined within its folds. Mr. Smith, Mr. Teale's colleague, lately met with such a case. The omentum was found continuously adherent to the whole circumference of the neck of the sac, and coiled into a long tube, the upper extremity of which embraced a small knuckle of intestine. A *small portion* of healthy omentum may be returned, but if there is a *large portion* protruded, although quite healthy, Mr. Teale agrees with most surgeons in advocating its removal. Its exposure to the air and the manipulations which would be requisite, would often induce inflammation and gangrene after its return. If contused, lacerated, gangrenous, inflamed, or any way altered in structure it must also be removed. We must not act upon a belief in its vitality as we do in that of intestine, from the veins refilling after being emptied by pressure; for the inflamed intestine possesses a power of recovering itself when released from stricture which this part does not. In all cases Mr. Teale advocates its removal by *incision*. A temporary ligature is to be passed through it to prevent sudden retraction and consequent hemorrhage. The portion to be removed is to be cut off by a knife or scissors, and any bleeding vessel secured by a ligature, one end being cut off close and the other allowed to pass out of the wound. After division the remaining portion is to be pushed into the abdomen, and not allowed to remain as a plug for the mouth of the sac, being when adherent there, ineffectual for the prevention of future hernia and often the cause of distressing dragging sensation at the stomach. The allowing the omentum to slough off, often gives rise to great constitutional irritation, as does its removal by the ligature alone, while the hæmorrhage resulting from simple excision renders it a dangerous practice.

"The mode of treatment which combines such a degree of efficiency and safety as to render it worthy of general adoption, is the excision of the omentum and ligature of its vessels. In reference to this practice Sir A. Cooper states, that, as far as he has seen, 'it is unattended with danger.' Mr. Lawrence speaks with the same confident tone of its safety. My own experience is in perfect accordance with theirs. Indeed, those cases in which I have either practised, or witnessed the excision of large portions of omentum, the vessels having been

secured by ligature, have been among the most fortunate of the operations for strangulated hernia which have come under my notice; for the omentum had, to a certain degree, protected the intestine from the pressure of the stricture, and the removal of the omentum had not in any case been followed by evil consequences."—*Teale*, 142.

Chelius, speaking of omentum altered in structure, observes: "The general advice, in these cases, is to tie the omentum above the degenerated part, to cut it off below the ligature, to return the tied part into the belly, and to fasten the threads externally. The ligature of the omentum, however, causes a new strangulation." Mr. South states that he has tied the omentum and cut off the part below the ligature several times without any such, or other evil result following. He also states that, by tearing through as much of the omentum as he can, and dividing only that which could not be so removed, he has very rarely had occasion to apply ligatures.

"If the blood have not coagulated in the vessels of the omentum, cutting it off and tying them singly is not only an almost interminable business, but also apparently when all the vessels have been secured, and the patient put to bed, after a few hours secondary bleeding occurs from some little vessel or vessels which had escaped notice, the sac and yielding skin becoming largely distended with blood, in such quantity as to produce faintness, and require the re-opening of the wound to remove the blood and tie the bleeding vessels. This disturbance of the wound prevents the adhesive process, and very commonly gives rise to abscess of the sac or its immediate neighbourhood, by which the cure is much retarded. A case of this kind occurred to me, and a large abscess was the result, although the patient ultimately recovered. It is on this account I prefer tearing through the omentum as much as possible, by which the ends of the vessels are ensheathed in cellular tissue, and do not bleed, or even tying up the omentum together." P. 42.

3. *Trusses.*—Mr. Teale has several useful observations upon these. The use of hard pads of *wood* or *ivory*, employed in the 16th century, has been revived by the American surgeons. Dr. Chase has especially paid much attention to their due adaptation as trusses, and the Philadelphian Committee speaks highly in favour of his success. The object is not to induce inflammation and consequent consolidation of the compressed parts, but to secure the perfect retention of the viscera, thus effectually palliating the evils resulting from the disease, and enabling Nature in many instances to effect a permanent contraction of the aperture. So great is the comfort obtained by these trusses, that the Committee states, some patients refuse to discontinue them even when pronounced cured. "Pads of ivory, confined by plasters or a soft bandage, are of great value in the treatment of the *umbilical herniæ of infants*. I have also found ivory pads with a delicately adjusted spring efficient and cleanly, and not productive of pain, in the treatment of the inguinal hernia of infants. M. Malgaigne has found an ivory pad, of a mushroom form, supported by a common spring truss, of great value in some obstinate direct inguinal and umbilical herniæ." Great care must be taken that the pressure of the spring be not too forcible upon a hard pad, and that the surface of this be smooth and well adapted. Pads formed of *caoutchouc* and filled with air have been found by MM. Cresson and Sanson of great utility in supporting herniæ, manageable by no other,

or where the pressure of hard bodies could not be borne. Unfortunately, they soon become useless from the escape of the air. "Caoutchouc filled with curled hair, or a solid mass of this substance, is a good substitute for M. Cresson's pads. Whenever caoutchouc is used as a compress, a layer of linen should be placed between it and the skin." Trusses constructed upon Salmon and Ody's principle have been pronounced theoretically bad, but Mr. Teale has known them most beneficially resorted to after the common spring truss has failed in giving any relief. Sir A. Cooper thought them not adapted for persons engaged in laborious employments, but M. Malgaigne states that they form most efficient instruments for this class of persons.

"It is of the greatest importance that patients should not only be furnished with an efficient truss, but also that they should be instructed in the principles upon which it acts, and the correct mode of its application. I have frequently witnessed patients whose herniæ had partly descended by the side of the truss, in consequence of the imperfect application of the instrument. The truss should always be worn both day and night. By neglect of this rule the danger of strangulation is incurred. During the simple act of turning in bed, or during the more violent efforts of coughing or yawning, the unsupported hernia may descend and become strangulated. On this account, it is desirable that the patient should be provided with two trusses, that the hernia may not be left unprotected whilst the instrument requires occasional repair.

"When the viscera are perfectly retained by trusses, the neck of the sac, no longer distended, contracts, and may become ultimately closed. So, also, the aperture in the abdominal muscles and aponeuroses, through which the hernia had descended, when no longer traversed by the protruding viscera, becomes gradually diminished, to such a degree as, in some instances, to constitute a permanent barrier to the future descent of the bowel. Thus, whilst the surgeon employs trusses as the most effectual agents in the palliative treatment of hernia, he is, at the same time, adopting means of considerable power for promoting the radical cure of the disease. But, whilst the palliative and remedial value of trusses is acknowledged, it must not be concealed that their beneficial effects are not altogether unalloyed with evil. The contraction and induration of the neck of the sac, consequent upon their use, renders it less yielding, and the abdominal viscera more liable to strangulation, if at any time they should accidentally descend." P. 74.

4. *Diagnosis of Inguinal Hernia and Hydrocele.*—Mr. Teale observes that the distinguishing inguinal hernia from hydrocele of the tunica vaginalis is usually sufficiently easy. The tumour of *hydrocele* is more pyriform; it increases from below upwards; it is usually translucent and fluctuating; but *never tympanitic*. It is rare for sufficient serum to be effused into the *hernial* sac to impart the sense of fluctuation, and still rarer for it to allow of any translucency while it *is sometimes tympanitic*. Hydrocele does not vary in size from pressure and position, which hernia frequently does. Mr. Teale, however, cautions his readers against laying too much stress upon *translucency*, as a *sign of hydrocele*, and cites two cases in point: one of these occurred to Arnaud, who was consulted for a large tumour extending from the ring to the bottom of the scrotum, and the upper part of which was divided from the lower by a circular furrow. The surgeon in attendance believed the upper division to be a rupture, and the lower a hydrocele, the light of a candle being transmitted through

this last. He proposed to draw off the fluid by tapping, in order that the hernia might be reduced. Arnaud, finding that the tumour was equally painful over its whole extent, and believing it to consist of intestine distended by air to such an extent as to allow of translucency, objected to this. As neither surgeon could agree with the opinion of the other, no operation whatever was performed, and the patient was allowed to die, when Arnaud's diagnosis was found to be the correct one.

"Again, a boy was brought to me at the Leeds Infirmary with a tumour of the scrotum of large size, tense, and elastic; the integuments being very thin, from the distension which it occasioned. On examination by the aid of a candle, in the presence of several pupils, it was found to be as transparent as any hydrocele which I had seen. Whilst examining it, I observed that there were two opaque lines intersecting the tumour diagonally; which, by pressure were, to a certain extent, made to alter their situation. This circumstance, together with the comparative lightness of the tumour, and slightly tympanitic condition which I detected, excited my suspicion as to the disease being a hydrocele, and justified me in treating it as a hernia. The use of the taxis shewed that the diagnosis was correct, and that the tumour was a hernia greatly distended with flatus; for, by pressure the distended bowel was with some little difficulty replaced within the abdomen. The opaque oblique lines indicated, most probably, the point of contact of distinct folds of intestine." P. 253.

Hydrocele of the Cord may be more easily confounded with hernia, and cases are every now and then brought to the hospitals with trusses applied. When the tumour is situated *below* the ring, we are enabled to grasp the cord as in the normal state; and when seated within the canal, "it is distinguished from hernia by its indolent character, by its unvarying size from pressure or position, and by its exhibiting such a degree of tension as a hernia only possesses in strangulation. If doubt, however, exists respecting the nature of such a tumour from the co-existence of symptoms of intestinal obstruction, it is the safest course to expose it by an incision." Scarpa and Liston have each related a case of strangulated hernia complicated with hydrocele of the cord, and requiring operation.

5. *Inguinal Hernia in Women.*—All surgeons have hitherto stated, that femoral hernia is far more frequent than inguinal in women; but M. Malgaigne (a practitioner of vast experience in this disease) maintains that the contrary is the fact. He admits that femoral hernia is more frequently operated upon in women than inguinal, proving only that it is more liable to strangulation. He maintains that the supposed predominance of femoral reducible hernia is attributable to faulty diagnosis. When this was carefully attended to, he invariably found the inguinal most numerous; and of 62 female cases he examined in 1835, 54 had inguinal, seven femoral, and one both inguinal and femoral hernia. Mr. Teale observes upon this statement:—"While I am willing to admit that many inguinal herniæ have, from defective diagnosis, been reported as femoral, and am willing moreover to give M. Malgaigne every credit on this subject, I am not at present prepared to acquiesce in his statements, either from my own experience, or above that, from the experience of M. Cloquet, who examined *post-mortem* 121 women affected with hernia, and found that 42 were affected with the inguinal and 79 with the femoral varieties."

The following is the mode of examination practised by M. Malgaigne in difficult cases:—

"Reduce the hernia, feel with the right fore-finger the pulsations of the femoral artery, and, applying the pulp of the finger on the pubis side of the artery, press backwards towards the pubes. Sometimes, in thin persons, you will feel the femoral ring open, bounded in front by Poupart's ligament, behind by the pubes, on the iliac side by the vein and artery, the pulsations of the latter being felt through the interposed coats of the vein on the side of the finger; then it is unnecessary to proceed farther; in the natural state, the finger never could thus penetrate into the femoral ring. But suppose the subject to be fat, the hernia small, and the ring too deep and narrow to admit the finger; you must press against the pubes, whilst you perceive the pulsations of the artery against the side of the finger, and cause the patient to cough. If the impulse is felt by the finger, and the hernia does not escape, it is femoral; but if the impulse is not felt, and the hernia escapes above, it is inguinal. Occasionally an inguinal hernia escapes above, and at the same time communicates an impulse to the finger. This effect can only result from one of the two following causes: either it is an inguinal hernia which distends the inguinal canal, and transmits an impulse below Poupart's ligament; or the hernia is femoral, and has distended and pushed forward Poupart's ligament, and a portion of the aponeurosis of the external oblique, so as to cause a projection above the ring which you have obstructed. You then with the right fore-finger close the femoral ring, and having placed the left thumb transversely about three lines above it, cause the patient to cough, whilst you slowly withdraw the fore-finger. If the hernia be inguinal, it is thereby retained; if femoral, it protrudes.'

"These directions are only applicable to reducible herniæ. When from any cause the protrusion is irreducible, the surgeon must endeavour to trace the neck of the sac issuing from beneath Poupart's ligament. This is most effectually done (when the line of Poupart's ligament cannot be satisfactorily traced passing over the tumour) by pushing the hernia upwards, and pressing with the *pulp of* the finger in the direction of the femoral aperture. If the hernia be femoral, more especially if it be strangulated, a firm, resisting, and sometimes painful, substance will be found occupying the femoral ring, and preventing Poupart's ligament being felt."—*Teale*, p. 322.

We must not forget to state that Mr. Teale's work is abundantly illustrated. His plan of placing all the references at the end of the work instead of at the foot of the respective pages may be a convenient one for the printer, but is a very annoying and troublesome one for the reader.

LECTURES ON NATURAL AND DIFFICULT PARTURITION. By *Edward William Murphy*, A.M., M.D., &c. 8vo. pp. 257. London, Taylor and Walton, 1845.

DR. MURPHY is the Professor of Midwifery at University College, and his book contains thirteen of the Lectures which have been delivered to his class, and comprise by far the most important subjects which the student of Midwifery has to learn. The reason that Dr. Murphy assigns for their publication is, that "his pupils, recalling to their minds the lessons they have received, may be enabled to examine the principles and precepts de-

livered to them, with more care and attention than could be done from the evanescent impressions of an oral lecture." We think that any one who has the guidance of a number of young men in one branch of their studies, has a strong and legitimate inducement to publish what he teaches, for the very reason that has suggested the present book. The design which our author has had in view is well accomplished, and we feel persuaded that his pupils may refer to these Lectures as containing the substantial groundwork of the theory and practice of midwifery. Dr. Murphy calls them Επεα πτερόεντα—which is the only fugitive part about them, They are really characterised by a profound knowledge of the subjects on which they treat, and attest the careful, thoughtful, modest, and discriminating mind of their author. We hope sincerely that they will find their way beyond the precincts of Gower-street, and be perused and studied by the practitioners as well as by the student. So far as composition goes we think that, in some respects, they are better adapted for the closet than for the lecture-room. Here and there the intricate and more difficult subjects bear their character too much about them. They want breaking up—the prominent points need to be brought out and worked up to more fully—and in this way they would be simplified and catch the mind of the listening pupil.

If we are to look upon these Lectures as the literal transcripts of those which Dr. Murphy has given, we should say that his art as a lecturer was not equal to his composition as an author. We do not see the pointed, short, energetic expression which is so effective in the lectures of Sir Astley Cooper and Dr. Watson. It is, however, quite possible that Dr. Murphy is not in the habit of reading his lectures; in which case his style may vary with the circumstances which surround him, and under the immediate necessity of quick thought and spontaneous unprepared expression, it may acquire those very qualities which are so apt to be effaced in written compositions.

The Lectures are on Natural and Difficult Parturition, to which are prefixed two lectures on the Obstetric Anatomy of the Pelvis. In doing this, our author has deviated from the exact course which he pursues in the lecture-room, but he has thereby given a completeness to the subject which would have been wanting had he omitted them. A Summary of the Principles and Rules contained in the Lectures are arranged at the end of the work as Aphorisms, in which some of Denman's are included. We may notice, also, that the work is well illustrated with wood-cuts, many of which are original.

The first Lecture includes a description of the bones, articulations, and ligaments of the Pelvis. The internal surface of the ischium is described as consisting of two planes, which are separated by a line drawn from the pectineal eminence to the spine of the ischium. The anterior plane is bevelled off in a forward direction, and any body, as the head, gliding on it would mechanically be conducted forwards towards the arch of the pubes. The posterior plane has a backward curve and would tend to rotate the head backward. And thus, in natural labour, when the head enters the oblique diameter, the occiput, corresponding to the anterior plane, glides towards the arch of the pubes, whilst the sinciput moves on its plane

posteriorly, the two movements co-operating simultaneously for the exit of the head.

Dr. Murphy describes the different planes of the pelvis, and notices the omission in most of the popular works of the measurements of the cavity. The planes are those of the promontory, brim, and cavity, and the effect of the differences of these planes in giving a screw-like movement to the head during labour is thus described :—

"Comparing the plane of the brim with the plane of the cavity, you find the transverse measurement of the cavity diminished, while the antero-posterior and oblique distances are increased ; you may also observe, that the oblique lines of the cavity appoach nearer to the antero-posterior direction than those of the brim of the pelvis, so that when the head passes from the brim into the cavity, always seeking the widest space, it first rotates from the oblique of the brim into the oblique of the cavity, and as it descends, is obliged, from the convergence of the planes of the ischium still more to assume the antero-posterior direction, until the occiput escaping under the pubic arch, it becomes fixed in this position: then the second rotation of the head from behind forwards commences, the transverse measurements of the head corresponding to the transverse of the outlet, and the longitudinal passing successively out in the antero-posterior measurement of the outlet."* P. 14.

There is a table of measurements at the end of the first lecture in eighteen pelves not diseased, which illustrate the differences in the extent of these planes which are compatible with safe and natural parturition.

Deviations from the Standard Pelvis.—Our author distinguishes between deviations or irregularities, and deformities or distortions the result of disease. Amongst the deviations he describes the pelvis altogether too large, and its opposite pelvis too small ;—then again the pelvis which, being arrested in its development, retains many of the characters of the infant pelvis, and that in which the features of the male pelvis are apparent. The last of the deviations is where there is an irregularity and a want of correspondence between the different proportions of the pelvis.

In the pelvis, where every part is equally diminished, forming the too small variety, the bones of the extremities are not only short but small, and hence they are a guide to the detection of this kind of pelvis. Sometimes this small pelvis is met with in women of average height, and the author refers to three cases quoted by Dr. Rigby from Busch's Berlin Reports, in all of which labour ended fatally. There is also a case, we may add, by Dr. Ashwell, in the Guy's Hospital Reports, in which a woman with this kind of pelvis died undelivered.

The pelvis of the adult female which retains the type of the infant pelvis is illustrated by two figures, which, placed side by side, renders the resemblance obvious. The lengthened antero-posterior diameter—the shallow cavity—contracted transverse diameters both of the brim and outlet are described. There is also a variety of this Pelvis where, to the cha-

* "It is here assumed that the pubic angle is sufficiently wide to allow the occiput to pass completely under the arch, and to place the head in the antero-posterior direction."

racters of the infant pelvis—there is the evidence of a retarded growth, which contracts and lessens the whole pelvis.

Dr. Murphy attributes the acquired characteristics of the male pelvis to the active and undue exercise of the strong muscles, which causes the bones to which they are attached to be strengthened and increased. Hence, in women who have been employed from early youth in carrying heavy weights or other active muscular exertion, in accordance with the law that bone is developed to meet the strength of powerful muscles, the acetabula would have a tendency to be drawn closer to the centre, the planes of the ischia would converge more, by the bone in its growth adapting itself to the diminished distance, the ilia would be more upright, in a word, the female pelvis would put on the characters of the male pelvis. There is much serious hindrance caused in parturition by a pelvis of this kind. The head passes through the brim well—but in the cavity the narrowing of the symphysis pubis and the straightness of the sacrum impede its lateral rotation, while the increased roughness and thickness of the tubers and spines of the ischia offer further obstacles, and probably the head becomes arrested close to the outlet. Dr. M. thinks that a guide to the detection of this kind of pelvis is found in the bones of the extremities. "The wrists and ankles are large—the phalanges thick and short."

We admit the plausibility of Dr. Murphy's explanation of the cause of this form of pelvis—and we can bear testimony to the difficulty it offers to the passage of the child's head. We can only express our surprise that if the former is right, if the pelvic bones are really influenced only by the law of their increase in proportion to the use and exercise of the muscles attached to them, we do not more frequently meet with this male configuration of pelvis. Taking the large number of women in the metropolis who, from their earliest years, have been accustomed to the undue exercise of the muscles attached to the pelvis, we ought to find a far greater proportion of male-formed pelvis.

Dr. M. describes a pelvis amongst those where there is an irregularity or a want of correspondence between their different proportions which may advantageously be contrasted with the male pelvis. Like the male pelvis, "it is also funnel-shaped; but the funnel is reversed. There is rather less space in the brim than in the standard pelvis, it is a little more oval, having its short axis (antero-posterior) less than 4 inches; but the cavity is wider, the planes of the ischia more apart, and the outlet much more open than the normal pelvis. It is almost doubtful whether a pelvis of this character may not be *slightly* diseased and consequently that it was beginning to assume something of that shape, the extreme of which forms the distortion of rickets."

The three varieties of diseased pelves are the ovate, cordiform, and obliquely ovate. The former is the result of rickets, a disease of infancy; the second is the result of mollities ossium, a disease of the adult; whilst the most plausible explanation of the latter is that of Dr. Knox—that there has been an early arrest of development in one half of the pelvis, the other growing normally, so that the appearance of an obliquely ovate pelvis is like the union of the halves of an adult and infant pelvis, with ankylosis of the sacro-iliac joint in the arrested side. The difference between the ovate and condiform pelvis, is accounted for by considering the effect of the forces acting on the pelvis, under the different circum-

stances of an infant and an adult. In the latter, a line passing through the centre of gravity would fall within the pelvis, and thus the weight of the body above and the resistance of the thigh-bones below would drive the yielding points inwards, doubling up the bones towards the centre. In the former, a similar line would fall before the pelvis, and then the yielding sacrum would be pressed forward in front of the cavity, the acetabula pressing up behind it, and the pelvis become lengthened laterally. There are drawings illustrating these varieties of deformed pelvis.

The subjects we have already noticed are comprised in the two first Lectures, and we think Dr. Murphy has treated them extremely well. They well deserve the careful study of the gentlemen for whom the lectures are specially designed.

Dr. Murphy adopts Denman's division of labours, and the three stages of labour of the same author. Previous to the description of the mechanism of the dilatation of the os uteri, Dr. M. describes, at length, the arrangement of the fibres of the womb, both on its internal and external surface. This we think he rather confuses, and the effect ascribed to these muscles appears to us to be very theoretical.

Dr. M. recognizes two orbicular muscles arranged around the opening of the tubes, and a circular set around the body and cervix of the womb. The effect of the action of the two fundal muscles is shewn by a diagram, to direct a body towards and through the os uteri—and "when the circular fibres of the body and cervix contract their tendency is to render the uterus more cylindrical." Dr. M. does not conclude this lecture without modifying this arrangement, for in another place he seems to deny to the cervix the circular fibres which he speaks of as contracting, and we have in a note an admission of a number of longitudinal fibres, which have no place in his diagrams. "It is his wish," he says, "to confine the attention of the student to those only which are the most obvious, and which are quite adequate to explain the action of the uterus." The two fan-like muscles on the outside of the womb are described and shewn; and the great mass of muscular fibres which lie between the inner and the outer set, forming the bulk of the womb, are said to have no determinate direction, but may be supposed to give increased power to the others. We really believe that Dr. Murphy is just as likely to be wrong as right about the whole of this matter. If there are longitudinal fibres, they ought to be put into the diagram and accounted for; and we cannot consent for a moment to allow as anatomy that the most obvious fibres in a great complex system of them should stand sponsors for the rest, or theoretically be assumed as adequate to explain the action of the uterus during labour.

Dr. M. opposes Wigand's view of the order of uterine contraction, which he declares always to commence at the fundus, and is directed downwards, and not at the cervix and directed upwards.

Dr. M.'s view of the means by which the os is dilated is essentially mechanical. The fundal muscles, with the aid of the bag of waters, open up the passively resisting cervix. We have ourselves always recognized another element, which we can only call a vital act, a sort of consenting or vital dilatation. It is demonstrable sometimes when in a deformed

pelvis, with a narrow brim, the bag of membranes or presenting part has never had a bearing on the cervix, and yet, as labour goes on, this part has acquired a perfect dilatability—it is felt to be unresisting, and yields at once when the head is drawn down.

Dr. M. describes the different kinds of rigid os uteri. Sometimes the structure is *tough*, and yields reluctantly. Sometimes thick cartilaginous, like Gimbernat's ligament, and it might almost be called "*the undilatable os uteri.*" Sometimes an os uteri *acquires rigidity*, having been at first dilatable. This is the result of inflammation—it becomes tender, swollen, rigid.

Our author describes the mechanism of head and face presentations in the same way as Naegele, whose opinions he has taken some pains to verify. He confirms Naegele's views of the change of the third position of the head, where the larger fontanelle is forward and to the left, (left fronto-cotyloid,) into the second position—the occiput making a spiral curve from right to left in its passage through the pelvis. At the Dublin Lying-in Hospital, Dr. Murphy found that, "in nearly an equal number of cases, the head entered the brim in the third position as in the second—that, of those which descended in the third, the majority passed without any difficulty into the second, and were so expelled, while a very few remained in their original position." There is a tabular view of 74 cases in which this fact is shown. Dr. Murphy adds his authority to that of all practical writers, that face-presentations may safely be left to Nature; and he tells us that, of the number of cases which he saw during a three years' residence at the Dublin Lying-in Hospital, "there was not a single face-position which required aid in the delivery, nor did the labour in any occupy twenty-four hours. The only danger, therefore, which might arise from these positions is the danger of meddling too much with them."

The manner in which the third stage of labour is completed, in the separation of the placenta, is said by Dr. M. to depend much upon the state of the abdominal muscles. If these are firm enough to support the fundus well, the placenta is frequently passed into the vagina by the same pain which expels the limb of the child. Dr. M. insists on the auxiliary force of the abdominal muscles and diaphragm as an important, if not an indispensable agent, in effecting this purpose; and the retention of the placenta, which is usually ascribed to uterine inertia, he thinks, is generally caused by feebleness in these structures. We do not quite concur in these views. The uterus, we fully believe, is quite competent to the unfolding and casting off of the placenta—whether its fundus be well or feebly supported by the abdominal walls. Indeed, we have witnessed it in women with large lax pendulous bellies—far too often to doubt its power in this respect. Dr. M., too, solves the riddle why after-pains occur mostly in women who have had several children, by supposing that, in these, the tonicity of the abdominal muscles is lessened or even destroyed—that the womb yields, and coagula are formed within its cavity—in expelling which, the uterus contracts and brings on after-pains. He does not ascribe this insufficient contraction primarily to the womb itself, which, however, we think is likely to be weakened by the distension it suffers during repeated pregnancies.

The Lectures on the Management of Labour contain those judicious re-

gulations for the conduct of the practitioner which have been authorised by most writers on midwifery.

The seventh Lecture commences the subject of **Difficult Labours.** The simple duration of labour is only one out of several circumstances which may cause it to be difficult.

"The causes which render labours difficult vary exceedingly. The delay arises sometimes in the first, sometimes in the second stage. In one instance, the constitution of the patient, or the rigidity of the passages, may retard the delivery; in another, the disproportion between the head of the child and the pelvis may impede the progress of labour. It is necessary, therefore, to classify these causes, and for this purpose we would include, under the head of '*difficult labours*,' two subdivisions—1st, That in which labour is merely prolonged beyond the average period, without being, at any time, unusually severe,—it is then called '*tedious labour*,'—2ndly, That in which, without reference to time, there is a powerful struggle carried on by the uterus to overcome some unusual resistance. This may be called by the expressive term '*laborious labour*.' The causes which produce the former are most frequently met with in the first stage of labour; those that give rise to the latter, generally occur in the second. These divisions embrace a great variety of causes, which may be classed under several heads. Tedious labour may depend either upon inefficient action of the uterus, or rigidity of the passages: and as their consideration will form the subject of the present lecture, we place these causes before you in a tabular form, in the order in which we shall consider them.

Inefficient action of the uterus from—	*Rigidity of the passages—*
1. Over distension of the uterus.	1. Rigid os and cervix uteri.
2. Extreme obliquity of the uterus.	2. Contracted vagina.
3. Gradual escape of the liquor amnii.	3. Rigid perinæum.
4. Hysterical excitement.	
5. Mental despondency.	

"Such are the usual causes of tediousness in labour. We might add others which are less frequently met with; but it is unnecessary to propose to you a complicated classification. P. 105.

The influence of Hysterical Excitement and Mental Despondency in rendering labour tedious is well described. Perhaps, to his graphic picture of high excitement, followed by the depression of anxiety, he might have added that fainty state which so often embarrasses the first stage of labour in hysterical women, and alarms the immediate attendants.

The medical treatment is chiefly to be directed to the state of the bowels, which ought to be looked to before labour commences. During labour, however, the removal of scybalæ by an assafœtida enema is recommended. "When the bowels are unloaded, narcotics, combined with the diffusible stimulants, will more efficiently control the irritability of the patient." We think our author ought to be more explicit in defining the time and circumstances which demand "a full anodyne." We believe there is much harm arises from the exhibition of opiates in these cases, and that, instead of the "some hours' refreshing sleep" being procured by it, there is very often increased restlessness, heat of skin, headache, dry brown tongue, and a further derangement of the first stage of labour. Occasionally, however, but only occasionally, it may be had recourse to with manifest advantage; but in by far the majority of cases, where the hysterical state exists, the attention to the bowels, more especially the

removal of the flatus which collects in the colon, with a diligent regard to ventilation, diet, and tranquillity, are the best adjuvants to be adopted. The tact and skill of the medical attendant in inspiring his patient with confidence, sometimes diverting her mind, and at others sustaining it by a kind and patient encouragement, are never more needed or tried than in cases of this description.

The effect of mental depression in retarding labour has often been noticed; but there is much precision given to a class of cases by our author in this paragraph on Mental Despondency. Extreme cases of the kind are rare; but the *unaccountable sudden deaths* which sometimes follow labours not marked by difficulty are to be explained in this way. Three fatal cases are related by Dr. Murphy, in which death was produced by extreme nervous shock. The deep depression in these cases, putting on the appearance to a casual observer of resignation and fortitude, is in contrast with the noisy, complaining, restless character of the hysterical patients. It is the calm of indifference and insensibility, and denotes a most dangerous state. The absence of complaint and of any distinctly bad symptom may lull the practitioner into a false security, but when once perceived, these cases need the most anxious care.

"Stimulants may be given moderately, carefully observing their effect, the temperature of the surface and extremities attended to, and the bowels (which are always constipated) relieved by warm and stimulating enemata. Ergot of rye, in moderate doses, to excite the specific action of the uterus, is useful.

"You may thus succeed in securing a favourable dilatation of the uterus, before the patient becomes exhausted; so that, in the second stage, the uterus may retain sufficient power to complete the delivery in a short time; but if this be not the case, artificial assistance becomes necessary, in order to abbreviate its duration as much as possible. When the child is partly born, you must be careful, also, not to withdraw it too rapidly from the vagina and uterus, because the danger that attends the case is not confined to the effect of tediousness in labour; you have still to guard against the syncope that may follow the complete contraction of the uterus. It should therefore be permitted to expel the remainder of the child very gradually, while an equable pressure is maintained by a broad bandage over the abdomen." P. 114.

The causes of delay in the second stage may arise from the head of the child, which may be placed irregularly, or be too large, or too much ossified, or hydrocephalic. They may arise too from certain states of pelvis—the masculine or diseased pelvis. These conditions are well described by our author, and also the differences which are to be observed between an arrested and an impacted head. We transcribe the paragraph which alludes to the latter:—

"When the head is *arrested* in the pelvic cavity, it may be readily distinguished from the *impacted* head. In the former case, if the head be slightly pushed back, the finger can be passed with facility between the head and the pelvis, the ear may be touched, the parietal bones do not overlap each other strongly, the scalp is only puckered, or, if a tumour be formed on the presenting part, it is diffused, increases slowly, and seldom attains any magnitude. In the latter instance, when the head is *impacted*, it cannot be so easily displaced; it is impossible, without force, to pass the finger between it and the symphysis pubis; the ear cannot be felt, and the urethra is compressed. The parietal bones are strongly overlapped, and cause the sensation to the finger that is expressed by the homely simile of 'the sow's back;' a tumour grows very rapidly, and to a great size, often com-

pletely obscuring the character of the presentation: the vagina is also swollen and congested. If, however, the death of the child take place, it becomes less in size, softer, crepitant, and œdematous, while the serrated edge of the suture may be felt still more distinctly." P. 134.

Inflammation and exhaustion, the injury to the soft parts which may result from the former, and the immediate dangers which attend the latter, are the unfavourable results of laborious labours. Dr. M. describes the symptoms which indicate these states, and the general treatment to be adopted in them. When inflammation comes on, the head being in the cavity, active depletory measures, with tartar-emetic, are to be promptly used, if the patient be plethoric. If she be of weak habit, local depletion, fomentations and enemata may be had recourse to. A *moderate* opiate may advantageously be exhibited after the bowels have been relieved. When the womb is becoming exhausted, delivery must be accomplished. But much may be done to prevent the coming on of exhaustion. A moderate dose of opium, when the pains are weak, and recur at long intervals, will procure rest, and lull the over-active state of the nervous system. After a temporary rest, if the womb does not spontaneously recover, but continues to act feebly, a dose of ergot may be given to stimulate it. Dr. Murphy fences the use of this obstetric instrument with a judicious number of precautions, and cites Dr. Beatty's and Dr. Hardy's views of its fatal influence on the life of the child. This general description of the treatment of inflammation and exhaustion precedes the description of the management of those protracted labours where neither of these states have supervened, and instrumental aid is not imperatively demanded. Our author stops to consider at length "those more doubtful cases in which there seems hardly sufficient space for the head to pass safely through the pelvis. In these cases, the practice is not so clear, nor is the evidence of the profession so unanimous upon them." The discrepancy of opinion is, in other words, on those cases wherein the head is not quite arrested, "but advances so extremely slowly that it seems to be arrested." Drs. Burns, Hamilton and Campbell are cited as advocating artificial delivery by the forceps, their dread arising from too long delay, whilst William Hunter, Osborne, Denman and Collins, trust to the powers of Nature, as long as the head, under the influence of the pains, advances *ever so slowly*. Our author labours to establish the propriety of the latter practice, by a reference to facts rather than opinions. For this purpose he derives from a statistical record of the results of British, French and German practice, that the mortality of the child, in forceps cases, is 1 in 4; whilst in Dr. Collins's able report of cases which lasted beyond twenty-four hours, the effect of leaving them to Nature was a mortality of 1 child in 5. Dr. Murphy's own experience and conclusion is thus told:—

"In 5699 cases, 218 were protracted to this degree; and of these 175 were delivered naturally, and forty-one children not putrid were still-born, being one in four, nearly. Thus, then, you perceive that, taking the widest, and, we would say, the fairest view of this question, the proportion of still-born children in these difficult and protracted cases is nearly the same, whether the forceps be employed or otherwise; that the difference, if any exist, is in favour of Dr. Collins's practice of leaving these cases to nature." P. 147.

Dr. Murphy too, by a similar reference to statistics, arrives at the con-

clusion, that the "mortality to the mother is not increased by leaving these cases to Nature;" and he further adds, that the post partum accidents, as the sloughing of the soft parts, and the formation of fistulous communications, are due most frequently to forceps operations. With very occasional exceptions, then, Dr. Murphy adopts Dr. Collins's views, and is an advocate for non-interference in these protracted cases.

In the management of cases where the head is impacted in the cavity of the pelvis, our author cannot make the same reference to statistics, to work out from them a conclusive opinion on the merits of the forceps or perforator. One or other of these means must be employed: but "we must only hope," says Dr. M., "to determine the rule of practice by a fair examination of the question itself, by collecting the general experience of the profession, and by submitting to you the ground which would govern us as to the course to pursue." We confess our own decided preference to this form of arriving at a practical conclusion. We distrust midwifery statistics, and we feel persuaded, that it is most unsafe to yield one's judgment to them in the naked way in which they are presented to us, unless the cases of which they are composed are most diligently sifted, and their particulars accurately made out. They contain, and frequently conceal, several sources of error, which, when enclosed in the statistical columns, wear a most delusive guise, and are apt to mislead the person who depends upon them. Dr. Murphy approves of Baudelocque's experiments on the heads of still-born children, to shew that the forceps has little power in compressing and diminishing the size of the fœtal head, and agrees in regarding the instrument as an extractor. Its power in reducing the impacted head, to allow it to be drawn through the pelvis, he looks upon as very doubtful. The child's death from the compression of the head, when impacted, is very frequent, while the soft structures of the mother are exposed to the frightful dangers of contusion, sloughing, and the formation of fistulous openings. The attempt to prevent the former, increases the dangers of the latter, and thus the use of the forceps in these cases, has by most well-informed practical men been looked upon as needing the most practised discretion. The practice rests a good deal upon whether the child is alive or dead. Formerly, practitioners waited until undeniable signs of the death of the child shewed themselves, such as marked commencing putrefaction, and hence delay with its fatal results so frequently accrued. But now, by means of the stethoscope, which ought always to be used in these cases, the fœtal heart may first be heard beating, then becoming feeble and irregular, then ceasing, and the death of the child be early and certainly predicted. Now, according to Dr. Collins, if protracted labour has been properly managed, the child's death is thus announced before the symptoms in the mother become so alarming as to cause any experienced physician to lessen the head. And thus the scruples of the practitioner are allayed, and the safer practice indicated of employing the perforator rather than the forceps. Our author thus sums up his opinions on this subject:—

"I trust sufficient has been placed before you to authorize the conclusions at which I have arrived, and which are now submitted to you—viz., that when the head is impacted in the pelvic cavity, it cannot be delivered by the forceps without such injury to the passages as might endanger the mother's life; that the pro-

bability of preserving the child's life is not sufficiently certain to justify an attempt which might be so hazardous; that, in a great majority of these cases, the death of the child takes place naturally, and it may be removed before symptoms dangerous to the mother present themselves; and lastly, that if it should happen that the reverse occurs, and danger to the mother—whether from exhaustion or extending inflammation—is indicated before the death of the child, that then perforation is called for, rather than render the risk to the mother a certainty, by the dangers that result from a forcible extraction by the forceps." P. 162.

The concluding Lectures are on Operative Midwifery. Dr. Murphy describes at length the use of the vectis, and quotes Mr. Gaitskill's rules for applying it. He thinks that its power as an instrument for extraction is limited, and that it is liable to some disadvantages from which the forceps is free.

There is a series of diagrams, quite original, we believe, which illustrate very well the mode of applying and using both the Vectis and Forceps. They exhibit the patient in the ordinary obstetric position on the left side.

There is a table of measurements of the forceps, which have been chiefly used in British practice; and a description with a drawing of the principal forms, beginning with Chamberlen's. The different varieties of perforators are also figured.

THE PHYSIOLOGY OF THE NERVES OF THE UTERUS AND ITS APPENDAGES. By *Joseph Swan*. London, 1845. Pp. 31.

THIS small pamphlet owes its appearance, we presume, to the controversy which has for some time existed respecting the state of the nerves distributed to the uterus during gestation, and which has attracted special attention during the last year. We need not remind our readers of the views entertained by Dr. Robert Lee respecting the enlargement of the nerves and their ganglia in the gravid uterus, as they have been so often brought before the notice of the profession. In an interesting paper read before the Royal Society, in the Session preceding the present, and to which subsequently the Council have awarded one of the gold medals of the Society, Mr. Beck contends that the uterine nerves *do not experience any increase in size during pregnancy*, an assertion resting on some most beautiful and successful dissections of the hypogastric and sacral plexuses. As this paper is not yet published in the Philosophical Transactions, we extract the following brief notice contained in the printed "Proceedings."

"On the Nerves of the Uterus." By Thomas S. Beck, Esq. Communicated by Sir Benjamin Brodie, Bart., F.R.S.

"The object of the author in this communication is to record the results of his dissections of the nerves of the uterus, both in the unimpregnated and gravid states, with a view to determine if any changes are observable in them in these two conditions. He enters minutely into the anatomical details of the formation of the great splanchnic nerve, the composition of the semilunar ganglion, and the distribution of the branches proceeding from it to the different abdominal viscera. His conclusions are, that while the ovaria derive their nerves from the

renal, the Fallopian tubes from the hypogastric, and the bladder, rectum and vagina from the pelvic plexus, the nerves supplying the uterus are continuations of the hypogastric plexus, and that they undergo, during pregnancy, no further change, either in size or position, except that which is the simple consequence of the enlargement of the organ over which they are distributed, and that they undergo no other change during a second pregnancy. He thinks it probable, moreover, that the vessels of the uterus do not decrease in size after parturition, but are only contracted in their cavity. He notices several points relating to these subjects, which are still open to further investigation. The paper is accompanied by highly finished drawings of the appearance of the dissected parts."—(*Proceedings of the Royal Society*, 1845, p. 562.)

That this investigation is an important one, must be inferred by the sanction it has received from some most competent judges; but it is due to a very diligent cultivator of this branch of anatomy, Dr. Lee, to state that the correctness of his researches has also been admitted by many distinguished observers, and further, as appears from the following communication made to the Royal Society subsequently to the reading of Mr. Beck's paper, that that gentleman remains convinced of the truth of his original conclusions.

"Supplement to a Paper 'On the Nervous Ganglia of the Uterus.' By Robert Lee, M.D., F.R.S., Fellow of the Royal College of Physicians.

"The author is confirmed in his views regarding the arrangement of the nervous filaments distributed to the uterus, as described in his papers printed in the Philosophical Transactions for 1841 and 1842, by his recent dissection of a gravid uterus at the full period, and which he considers as demonstrative of the accuracy of all the statements which are contained in those communications."—*L. c.*, p. 566.

As the point in dispute may be more advantageously considered when Mr. Beck's communication shall have been published, we proceed to notice Mr. Swan's brochure. The author states that the principal facts now republished, and the leading opinions founded on them, originally appeared several years ago, but that he has been induced again to present them to public notice, because it appeared that they required a fuller explanation.

One principal object with Mr. Swan, is to show that increased action may take place in a part without its nerves being necessarily enlarged. He observes:—

"When portions of the body and their particular faculties are separately noticed, it may appear as if changes of function could not be produced without some alteration of structure; and although this may be the case in many instances, yet changes will be found for which neither structure nor ordinary faculties will account, and it is only on an extensive survey of the animal economy that coincidences will occur to remove some of the obscurities, and further suggest that there may exist modifications of faculties which may be prominent in some animals and seldom apparent in others. and that these may be enhanced by altered qualities of the more immaterial or spiritual part of the nervous system. In this manner the apparent leading peculiarities of the faculties of one animal may be brought to produce an additional or extraordinary power in others for accomplishing some particular object. The dominant passions and faculties of the brain and instinct of some animals can, on an emergency, be roused into action in others, to which they are in the same very high degree almost entirely strangers. They are excited either by external objects, or by the activity of some

organs, as the stomach, the ovaries, or the testes. In some, a process bearing a slight analogy to reproduction is carried on in various parts, as in the growth of deciduous horns, or the permanent growth of the front teeth of rodent animals; also in the growth of hair."—(*The Physiology of the Nerves of the Uterus*, p. 6.)

This position is supported by several instances, in which "the changes in the nervous system do not appear to depend on an altered structure, but on the altered qualities of the immaterial or spiritual parts." Thus, in pregnancy, these qualities are exalted; and, previously to the commencement of parturition, the altered quality of the nerves of the lower part of the uterus, the vagina, and of the external parts, by which their sensibility is exalted, becomes apparent. Again—

"If much power is required in a part not actuated by the will, it is supplied by large sentient nerves, which are so combined with the motive at particular points as to be able to call muscles into action; this is done in the face, and particularly on the surface of the body, in which the cutaneous muscle exists." "By the acquisition of enhanced, or new qualities, small and safe means are sufficiently substituted for extraordinary occasions, rather than larger provisions, which might be prejudicial in the ordinary functions of the animal: thus very small and apparently insignificant nerves are used for causing very powerful effects, by combining them with parts capable of undergoing irritable changes, and thus imparting to them sufficient exciting qualities at the time the expulsion of the fœtus becomes necessary." (*L. c.*, p. 11.)

The conclusion to be drawn from all these arguments is, that as organs can assume an unwonted degree of activity, in virtue of the exalted qualities of their nerves, there is no just reason why the nerves of the uterus should be enlarged during pregnancy. Although we conceive that *no* action ever occurs without a corresponding change in the organ employed, yet this may often consist of a merely temporary alteration, such as an increased flow of blood; so that we concur in the general truth of Mr. Swan's inference, though on somewhat different and more restricted grounds.

In proceeding to consider the particular faculties of the nerves employed in conception, gestation, and parturition, the author endeavours to establish an important distinction between the power of the sympathetic and spinal nerves in exciting muscular action; the impulses of the former are just sufficiently strong to excite the involuntary contraction of the muscular coat of the viscera, "but when any part is so much irritated as to become painful, the impression on the sympathetic is conveyed to the sensory indirectly, by communications with the spinal marrow by the spinal nerves, and voluntary muscles are thus brought to act with them on some very urgent occasions." In this manner, the "gentle perceptive quality" of the sympathetic is therefore well adapted for supplying the uterus which is to contain the growing fœtus; but to excite the violent expulsive actions of the abdominal muscles in parturition, spinal nerves are requisite, as they alone are extremely sensitive, and "at once convey impressions to the sensory nerves, and rouse the voluntary powers to free the parts they supply from compressing and irritating causes."—(*L. c.*, p. 15.)

The mode in which the ovary, the uterus, and the vagina are supplied with nerves, corresponds with the physiological principles here enunci-

ated; for, whilst the germ-preparing organ, the ovarium, and the part of the uterus particularly engaged in nourishing and developing the embryo, namely, the fundus, are exclusively supplied by the great sympathetic (by means of the spermatic and hypogastric plexuses,) the lower part of the uterus and the vagina, which are specially concerned in exciting, by their augmented sensibility, the expulsive actions, derive their supply partly from the sympathetic and partly from the sacral nerves. It is a remarkable and interesting fact, that the nerves of the unimpregnated uterus are very small, and present a striking contrast when compared with those of the bladder, vagina, and rectum.

The author describes a particular fibrous expansion connected with the round ligaments, and placed between a considerable portion of the muscular parietes of the uterus and the peritoneum, which increases very much in the last period of pregnancy; its use is mechanical. Mr. Swan seems, in the following passage, to imply that this texture might be mistaken for a nervous structure, especially if the colour of the parts had been previously removed, as by spirits of wine. "The nearer the full period of gestation, the more developed is this structure, and then its identity with nerve cannot be entertained by the most inexperienced; there is a greater resemblance at an earlier period, and particularly after it has been blanched in fluids. It would have been contrary to the economy of the nervous system, and particularly when the brain is very large, for a mass of nerve equal to this fascia to have existed, and it is not possible to conceive that the term of utero-gestation would ever have been completed had it partaken of the nervous function, and been stimulated by the present copious supply of blood. Such a power would have been incompatible with its connection with any organ so irritable as the uterus, when it contained a living embryo."—(*L. c.*, p. 20.

It would not be doing justice to the author in noticing a pamphlet like this, in which, for the sake of brevity, everything is condensed into a small compass, if we did not present the general conclusions at which he has arrived in his own words; we therefore extract the following summary:—

"It may not be uninteresting to recapitulate the leading facts set forth in the preceding pages, for showing that there are various powers implanted in the animal body for its preservation, and capable of being called into activity on proper occasions; that variations of faculties and qualities more or less prominent, or entirely quiescent, form these means, throughout the animal creation; that provisions have been thus made for accommodating one part of the body to another, that useless mechanism might be avoided, when it could not be diminished or removed, and it would remain as an incumbrance after the completion of any special process; also for adapting the animate portion of the creation to the variations of the inanimate, through which the animate is to be more or less sustained or destroyed. It has been stated that there need not be altered structure when there are altered functions; that there are natural processes, neither requiring nor producing more than a very slight local excitement; that natural processes in the mature body of some animals are resembled by the growth of the embryo; that there are variations of natural processes which are healthy in one animal and morbid in another: that there are restorative processes analagous to the natural healthy ones; that there are modifications of excited faculties in reproduction which are healthy in some animals and morbid in others; that parturition, although a healthy process, approaches very near to the morbid; that

there are increased natural motive powers resembling tetanus; that there is a general altered quality of the nervous essence, and particularly after conception, for expediting the maturity of the fœtus, and producing a higher excitement for the completion of parturition; that there is a local power of excitement produced in the nerves by the excited condition of the lower part of the uterus and vagina: that the local actions are modified by the peculiar qualities of different nerves, and are further changed by combinations between themselves; that the sympathetic is well adapted for the functions of the ovary, also for the increase of the uterus and the nourishment of the fœtus, but is not sufficient for exciting full expulsive powers; that the branches from the plexus of the conjoined hypogastric and sacral nerves at the lower part of the uterus and vagina are proper for receiving irritation at the full maturity of the fœtus, or on the accession of any morbid cause, and are then capable of exciting tetanic action; that the sentient nerves of the external parts are proper for rousing the voluntary muscles to expel the fœtus; that the fibrous structure connected with the round ligaments and placed between the peritoneal and muscular coats has entirely mechanical powers for preserving the attachment of the peritoneum to its proper place after the contraction of the uterus; that the plexus of conjoined hypogastric and sacral nerves is not proper to the uterus, but to the bladder and rectum; that in uniparous animals the nerves and blood-vessels are severally arranged for retarding the growth of the uterus and fœtus; that in multiparous animals every part of the uterus, except the very lowest, is fully and freely adapted, by the arrangement of the blood-vessels and nerves, for expediting the maturity of the fœtuses, and that the portions only containing the fœtuses can receive sympathetic nerves; that if there be any enlargement of the uterine nerves, it is very slight, and that such a power would not have been proper for securing the gentle action of the uterus during gestation, if it could have promoted the violent one in parturition."—P. 28–30.

Before concluding this notice, it is requisite to state that, in many parts of his essay, the author has announced as settled facts, what are merely speculations, and speculations, moreover, many of which we believe to be opposed to the laws of organic and animal life. For example, in alluding to the arrangement of the uterine vessels, he affirms that "as arterial blood might be more stimulating than is consistent with the inactive life of the fœtus, it is generally furnished by the veins which are accompanied by nerves for regulating the quantity, and giving a modified and requisite impetus, and in this respect there is an approach to the supply by the portal vein of the liver, and its accompanying nerves." In answer to this hypothesis, it may be remarked, that no physiologist in the present day imagines that there is any direct communication between the maternal and fœtal vessels, by which the arterial blood of the former is conveyed to the latter; on the contrary, every advance in this direction, and more particularly we would refer to the researches of Weber, Sharpey, Dalrymple, and Goodsir, shows that it is a deposit or secretion from the uterine blood which is conveyed to the fœtus; not that there is any special reason why arterial blood should not circulate in the umbilical vein, a circumstance which does actually occur, among many other examples, in the chick.

Again, we conceive that the author has exaggerated the influence of the nerves over the formation of the ovum and its subsequent development. Nor do we think it is at all proved that, in parturition, the abdominal muscles are excited essentially by the branches of the spinal nerves distributed to the lower part of the uterus, the vagina, and the labia; it is much more

in keeping with what is observed in convulsion induced by irritation of the mucous surface of the intestine, to infer, on the contrary, that the branches of the sympathetic distributed to the uterus are primarily affected at the approach of parturition, and that they excite the spinal action. Without desiring in any degree to detract from the merits of the author, we cannot withhold the expression of our regret that he should, on such a slender foundation, have so largely indulged in that theorizing spirit, which has proved so great an obstacle to the progress of true physiology, and which, of late years, has fallen into deserved disrepute.

OVARIOTOMY.—REMOVAL OF AN ENCYSTED TUMOUR OF THE LEFT UTERINE APPENDAGES. By GEORGE SOUTHAM, Surgeon to the Salford Royal Hospital and Dispensary, Manchester. 1845.

MR. SOUTHAM has operated successfully in two cases of ovariotomy, and the present pamphlet contains an account of the second case, which was read at the Anniversary Meeting of the Provincial Medical and Surgical Association, and published in their Transactions.

The following is an outline of the case.

Mrs. S., æt. 38, has been married twenty years, but has never been pregnant. The abdomen began to swell eight years since, but her general health being good, and the menstrual function regular, it was attributed to corpulency. For the last twelve months the abdominal tumour has so increased in size as to embarrass respiration, and she has had pains in the left inguinal region. She has repeatedly refused her assent to be tapped. She does not know whether the swelling began on one or the other side, as she did not notice it until it appeared uniformly diffused above the pubes. She applied to Mr. Southam, being extremely desirous of having it extirpated.

"On examining the abdomen, I found it nearly globular, and very prominent, distended to at least twice the size of a female at the full term of pregnancy, and elevating the cartilages of the ribs to a considerable extent; the parietes were perfectly smooth and natural in colour; fluctuation, though of a resisting kind, was very distinct in every part, and percussion elicited a dull sound. Change of position produced scarcely any alteration in its form. The uterus, as examined *per vaginam et rectum*, seemed to be of the natural size, but was situated higher in the pelvis than usual; the os was quite healthy, and on the abdomen being raised and depressed by an assistant, whilst the finger was placed in immediate contact with it, the uterus might be distinctly felt to rise and fall with an inclination to the left side. In the erect position, it could not be made to bound away from the finger. There was no protrusion of the vaginal parietes, but an elastic swelling could be easily perceived, pressing on the left side of the uterus and upper part of the vagina; in other respects the pelvic cavity was not encroached upon. Though somewhat emaciated, her general health did not appear impaired; appetite good; tongue clean; pulse natural; bowels occasionally constipated, but easily acted on by medicine; catamenia regular, though in less quantity than formerly; felt pain at times in the left inguinal region, or whenever she lay on the left side, and in consequence of the pressure of the tumour upwards, she has been unable to lie on her back, or in any other position, excepting on the right side, for the last twelve months." P. 4.

These symptoms clearly indicated the existence of ovarian dropsy of the left side, and Mr. Southam's opinion was confirmed by Dr. Radford, who carefully

examined the patient. The removal of the cyst was determined on. Preparatory to the operation, the patient was desired to abstain for a few days from animal food and stimulating liquors, the bowels were freely relieved by castor-oil, and the bladder emptied by the catheter. The temperature of the room was raised to 75° Fahrenheit.

Operation 24th June, 1845. An exploratory incision, large enough to admit the finger, was made midway between the umbilicus and pubes. The clear blue shining surface of the cyst appeared at the opening, and as no adhesions appeared near the opening, Mr. S. punctured the cyst with a full-sized trocar.

"After from sixteen to eighteen pints of clear, lemon-coloured, slightly mucilaginous fluid had been evacuated, pressure on the parietes being well sustained during its escape, the canula was withdrawn, and using the index finger as a director, the opening was enlarged above and below with a probe-pointed bistoury to the extent of between six and seven inches. Having ascertained, by the hand introduced into the abdominal cavity, that there were no impediments to the extraction of the tumour, it was carefully drawn out, gentle pressure being continued on the abdomen. Finding it was attached to the uterine extremity of the left broad ligament by a short and slightly vascular pedicle, I tied it firmly with a single ligature of the strongest dentist's silk. The pedicle was now divided, and the tumour being removed, the margins of the wound were immediately approximated to prevent the ingress of air. After a brief interval, the wound was again opened to remove what blood had escaped internally, and to ascertain that the vessels of the broad ligament were firmly secured. The uterus and opposite ovary were also examined and found healthy. One end of the ligature being cut off, the other was left dependent at the lowest point of the wound, the edges of which were brought together by four interrupted sutures and straps of transparent tissue plaster. Upon these a broad pad was applied, and the whole being adjusted by a bandage, the patient was lifted into bed, within twenty-five minutes from the commencement of the operation. During the whole time she sustained herself remarkably well, apparently not suffering much pain, except whilst the exploratory incision was made, during which some little delay occurred, from the parietes being freely supplied with adipose tissue. No difficulty was experienced from the intestines protruding, as they were remarkably flaccid. There was very little hæmorrhage and no vomiting, but a feeling of faintness was superinduced by the evacuation of the fluid." P. 5.

The following day there was some pain in the course of the wound and in the left side, increased by pressure, with fever and sleeplessness, for which Mr. S. bled her to 14 ozs., which lowered the pulse and caused faintness. With this exception, there was nothing untoward in the state of the patient, who gradually improved, and on the 12th of July she "returned home, a distance of three miles, and bore the journey well. The ligature came away on the forty-ninth day, after which the fistulous opening closed. The cicatrix of the entire wound does not measure more than four inches."

The treatment of the case after the operation consisted in keeping up the temperature of the room, carefully relieving any immediate symptom, such as flatus, a short cough, &c., and keeping the patient on low diet, such as barley-water, the barley-water and biscuit, and so on, to veal or chicken-broth with bread.

The cyst was single and oviform, and, when filled with fluid, weighed 31 pounds. The disease had begun in the broad ligament, the ovary being merely adherent to it.

In some remarks which Mr. Southam appends to the case, he insists most properly on the importance of a vaginal examination for diagnosticating these tumours of the ovary. He thinks that his mode of operating obviated the evils of both the major and minor incisions, and that the smallness of the opening would, in case of need, have enabled him to recede with but little danger to his

patient. Mr. S. insists on the propriety of not performing ovariotomy until the inconveniences of the disease demand relief.

Mr. S. appears to feel strongly the delusive and false inferences which the statistics of this remedy have occasioned. "When this mechanical system of reflecting," he says, "is allowed to usurp the power of reason, or of knowledge acquired by experience and observation, or confines itself to counting facts without interpreting them, the principles founded on it will be liable to error."

We quite accord with Mr. Southam in these remarks, and we are glad to see the cajoling influence of these medical sums of addition and multiplication, plainly exposed by a man of Mr. Southam's practical good sense. If the value of remedies or modes of practice are to be exclusively tested by an appeal to statistics, in the way in which medical statistics always have been and always will be formed—we are quite sure that some of our most valuable resources must and ought to be abandoned.

In one of the concluding paragraphs, Mr. Southam remarks:—

"The apparent facility of the operation may induce persons to undertake it. who are not qualified to form a correct diagnosis of the cases in which it is most likely to be beneficial. Mere manual dexterity, unaccompanied by a careful consideration of the circumstances of the case, and the condition of the patient, never can lead to the establishment of ovariotomy on a firm foundation." P. 11.

THE TRANSACTIONS OF THE PROVINCIAL MEDICAL AND SURGICAL ASSOCIATION. Vol. XIV. 8vo. 1846.

This volume contains but little that calls for notice. Eighty pages out of the 300 are occupied with a list of the members, &c.; and no fewer than 142 are devoted to the Retrospect Addresses on Medicine and Surgery, by Dr. Charlton of Newcastle, and Mr. Teale of Leeds. Would it not be better that these addresses should now be discontinued, or at least cease to be published, seeing that there is more than one periodical which professes to give yearly or half-yearly retrospects on different branches of medical science? With the talent and large experience of the members of the Association, the Council could find no difficulty in procuring a sufficient number of original papers for their Transactions, after the manner of the Medico-Chirurgical and other Societies. Besides the two Addresses, there is a long and elaborate report of the Reading Dispensary, from 1841 to 1844, by Dr. Cowan; and a minute statistical Report of the Surgical in-patients of the Berkshire Hospital, from its establishment in 1839, by Mr. May. The remaining articles are one on Grinder's Asthma, by Dr. Favell, of Sheffield, and an interesting case of Inverted Displacement of the Bladder, by Mr. Crosse: these we shall briefly notice.

I. The main design of Dr. Favell is to show that all the symptoms of "grinder's asthma" (a very inappropriate appellation,) as well as the pathological changes induced by it in the respiratory organs, are due to congestion or inflammation of the substance of the lungs; in some cases, giving rise to formation of tubercle, and in others, occasioning pulmonary degeneration without tubercular deposit. The primary and essential microscopic appearances are inflammation and sometimes ulceration of the mucous lining of the air-passages; dispersed masses of the pulmonary parenchyma in a state of induration, the result of a slow inflammatory action; small dark "current-like bodies" (the dilated extremities of veins, containing some of the solid constituents of the blood) on the surface and in the substance of the lungs; and lastly, tuberculous deposits. In addition to these changes, there are often extensive adhesions of the pleura, dilatation of the bronchi, emphysema of the lungs, &c. Dr. F., as well as Dr. Knight, is of opi-

nion that the fine particles of the grinding-stones do more injury to the workmen than the particles of the iron; being led to this conclusion by the circumstance that, in post-mortem examinations, it is common to find depositions of calcareous matter in the bronchial glands and tubes, whereas "there is no instance on record of any particle of iron or steel having ever been detected" in these parts. Moreover, it is well known that stone-cutters and leather-dressers are almost as liable to pulmonary affections as grinders. Dr. Hodgkin is therefore mistaken, when he attributes the pernicious effects of the occupation of the latter to the atmosphere of their workshops being loaded with the fine metallic particles.*

The tendency to pulmonic disease in grinders, from the direct inhalation of the irritating dust to which they are exposed, is greatly aggravated by the reckless dissipated character of their lives; by their unnecessary exposure to the vicissitudes of the weather, in passing as they often do from heated workshops into the open air, even in Winter; and by the stooping, leaning-forward attitude of their bodies, while at work, so embarrassing to the easy play of the lungs.

With respect to prophylactic treatment, much may be done by having the workshops properly ventilated and provided with a flue to carry off the floating dust to the outside of the building, as well as with a suitable arrangement of a series of magnets to attract the particles of steel, also by improving, at the same time, the social habits of the men, in reference to diet, clothing, and general hygiene. "If the moral status of the grinder were elevated, his habits of intemperance would be subdued, the whole system would be better nourished, and, consequently, there would be less liability to the formation of unhealthy deposits on the occurrence of incidental pulmonary inflammation."

II. Mr. Crosse's patient was a child between two and three years of age. There was a fleshy-looking tumour projecting out between the labia pudendi: it was considered a vascular excrescence by the medical attendant; but, before he proceeded to put a ligature round it, he fortunately asked Mr. C. *to see it.* This gentleman was puzzled at first what to make of the case; but he saw quite enough to dissuade the intended operation. The following is the description of the appearances:—"Towards the posterior part of the tumour, and on its sacral aspect, there was an aperture, which was conjectured to be the entrance into the displaced urethra. A very small female catheter easily entered this aperture, and passed along a channel a little to the left side of the median line: urine distilled in drops through the catheter, but there was not a gush, although the instrument had entered so far that we concluded it must have reached the cavity of the bladder. Besides what thus oozed through the catheter, slightly tinged with blood, there was an oozing of urine from another source, which was not explained until a second and more strict examination, instituted a few days afterwards.

He then "found, concealed in a fold of the tumour, and near to the posterior junction of the labia, two orifices not far asunder, from which the urine oozed, and which were evidently the vesical terminations of the ureters. On pressing the tumour firmly, as if to reduce it like a hernia, I found it yield and pass gradually behind the symphysis pubis, and within the labia; and under a continuance of the taxis it all retired, leaving the external parts in their proper shape and position. A passage remained, through which the tumour on retiring had taken its course, which was actually the dilated urethra, into which I *could* and *did* introduce my little finger, until it fairly entered the cavity of the replaced bladder; for it now became clearly demonstrated, that the vascular red tumour, externally presenting itself as first described, was the urinary bladder in its entire thickness, including its mucous, muscular, and peritoneal coats, prolapsed

* Lectures on the Morbid Anatomy of Serous and Mucous Membranes. Vol. II.

through the dilated urethra, and at the same time inverted or turned inside out."

The previous history of this case was imperfect. All that could be made out was, that the tumour had existed for a considerable time, and been always attended with a *stillicidium urinæ*. Mr. Crosse has lately learned that his patient is still living, and is now a healthy young woman, 18 years of age; but that unfortunately the incontinence of urine continues, although there has never been any relapse of the vesical inversion.

Dr. Murphy has related in the Medical Gazette for 1833, a case very similar to the proceeding one: it occurred in a female child four years old. At first, it was mistaken for a *prolapsus ani:* a more attentive examination of the parts disclosed the real nature of the displacement.

Mr. Crosse remarks that "when, from difficult labour, the bladder and contiguous part of the vagina sloughs away, creating a free communication between these two cavities, a real inversion of the bladder may take place through this abnormal aperture, of which I have known several instances; and in one, the inversion prolapsed so far as to escape at the external labia, and presented on its surface the terminations of the ureters, from which the urine was observed to dribble continually; when the injury is to this extent, the afflicting symptoms can only be palliated, and have not, to my knowledge, admitted of cure."

CHEMISTRY, METEOROLOGY, AND THE FUNCTION OF DIGESTION, CONSIDERED WITH REFERENCE TO NATURAL THEOLOGY. By *W. Prout*, M.D., F.R.S. Third Edition. Octavo, pp. 510. London, 1845.

THE fact of Dr. Prout's Bridgewater Treatise having reached its third edition proves it requires no recommendation on our parts to secure it an extensive perusal; and, in fact, so well known are now the views of its able author, that we only notice the present issue for the purpose of stating that he justly cites many of the results of the investigations of Liebig and other chemists as confirmations of the views of assimilation and nutrition promulgated by him many years since. We have indeed often thought of late, that, in the deserved admiration which has been bestowed upon the ingenious research and happy generalizations of the celebrated German chemist, we have in this country been somewhat ungratefully forgetful of the labours of Dr. Prout, and have received much as absolutely new, which was in fact but an old friend with a new face. Dr. Prout, after describing his classification of aliments into the saccharine, oily, and caseous elements, and the processes of transformation these undergo, observes—

"These views of aliments and of assimilation were first published by the author in their present form in 1834, and are now generally admitted by physiologists. They had been partially made known many years before the period stated, but attracted little notice in this country until they were adopted by MM. Liebig and Dumas, through whose means chiefly they have become generally known. MM. Liebig and Dumas have attempted to carry these views farther; they maintain that the chief or only use of saccharine and oleaginous elements is to produce animal heat by the combustion of the carbon they contain. We dissent from this opinion, for reasons, some of which will be subsequently noticed."

When treating of *Animal Heat*, he again adverts to this opinion.

"The quantity of carbon thrown off by the lungs, is very abundant; but has probably been much over-rated. Philosophers formerly estimated that the lungs of a man of ordinary size expel, in the course of 24 hours, about 11 ounces of carbon; but M. Liebig has recently estimated the quantity of carbon daily taken,

by a man in his food, and expelled as carbonic acid gas, at no less than 13·9 ounces! This celebrated chemist, also, in adopting the views above given, respecting the source of animal heat, has pushed them much further, and maintains that animal heat is *entirely* the result of the union of the hydrogen and carbon in the system with oxygen; and that the chief use of non-azotized articles of food, *i. e.*, of saccharine and oleaginous aliments, is to furnish carbon and hydrogen for combustion, and for the maintenance of animal heat! We have already said, and with many others always admitted, that the union of oxygen with hydrogen and carbon is *one* source of animal heat; but at present we totally dissent from the opinion that such union of oxygen with hydrogen and carbon is the *only* source of animal heat; or that the only use of saccharine and oleaginous aliments is that assigned.* The subject of Respiration and Animal Heat, notwithstanding the attention they have received from physiologists, are, we think, very imperfectly understood; and, if we are not mistaken, these important functions will hereafter be placed in an altogether different light from that in which they are at present contemplated."

There are other conclusions of the German chemists, which Dr. Prout does not accept. Of *Proteine* he thus remarks:—

"An attempt has recently been made to shew that albumen, fibrin, and caseine contain a certain common fundamental proximate element, to which the name of *Proteine* has been given. That such a common proximate element may be derived from albumen, fibrin, and caseine, is not denied. Viewed indeed in connexion with organization and life, the supposition that some common proximate element adapted for ulterior changes exists in animal bodies is very probable; and accords well with the simplicity of natural operations. But that a substance, obtained like proteine by the rude and disorganizing processes of common chemistry, should be that common proximate element; or that such a substance should ever be employed at all in vital operations without undergoing the preliminary assimilating processes, is more than at present we are disposed to admit."

ABSTRACT OF "RESEARCHES ON MAGNETISM AND ON CERTAIN ALLIED SUBJECTS, INCLUDING A SUPPOSED NEW IMPONDERABLE. By Baron *Von Reichenbach*. Translated from the German by *W. Gregory*, M.D., F.R.S.E., &c. 8vo. pp. 112. London, 1846. Taylor and Walton.

The highly respected names of the author and of the translator (the present Professor of Chemistry in the University of Edinburgh) of this memoir will justify us in briefly noticing it, however extraordinary, nay extravagant, many of the statements which it contains may seem to be. Without presuming to determine what amount of credit is to be attached to them, we shall, for the present, do nothing more than give a very short summary of the principal positions that are attempted to be established.

Magnets of a certain power, when drawn along the body, without contact, produce the sensation of an *aura*, accompanied with a feeling of a pricking of formication of the skin, and sometimes with headache, convulsive spasms of different parts, and so forth. Females are much more readily affected in this res-

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* "We had intended to state some objections to these assumptions, but have thought it better to refer the reader to a treatise on the Statics of the Human Chest, Animal Heat, &c., by Julius Jeffreys, Esq., where some arguments will be found against them, which appear to us unanswerable."

pect than males; and those of a nervous temperament than those in robust health: Epileptic, cataleptic, and hysterical patients are particularly sensitive; and lunatics and somnambulists are uniformly so. Highly sensitive or impressionable persons are sometimes seized with fainting and violent spasms, on the approach of a magnet: at the same time, the acuteness of their smell, taste, and vision becomes wonderfully exalted. When this is the case, they perceive, in the dark, the appearance of an Aurora Borealis-like light and flame issuing from the poles and sides of the magnet; this phenomenon is altogether invisible to ordinary eyes. In certain neuropathic diseases, especially catalepsy, a powerful attraction exists between the hand and the magnet; so that whichever way the latter is moved, the former follows, as if it were a bit of iron adhering to the instrument. When placed in the hand, the magnet was convulsively grasped, so that it was difficult to loosen the hold. Water, along which a magnet had been drawn, was found to possess the property of attracting the hand of a cataleptic patient. The same was true of other substances, when magnetised, (and even when unmagnetised, in many instances) besides water; all acted, more or less powerfully, upon her. It was afterwards discovered that none but *crystalline* bodies had the effect of causing the hand to close spasmodically upon them: amorphous substances were inert. The law is general that every crystal, natural or artificial, exerts a special action on the animal nerve; this action being greatest in neuropathic persons. The poles of the crystal emit a lambent light, visible only to sensitive persons; and the hand of such persons is distinctly attracted by it. Water also, and various other substances, may be magnetised (we use this word, for want of a better) with the point or pole of a crystal. In short the phenomena are altogether similar to those produced by the magnet. The magnetic needle, however, is not at all affected by any crystal. The *polar force*, therefore, which exists in *crystals*, and produces on healthy and diseased persons the above described effects, is not identical with the *magnetic force*. Both forces exist in magnets; in other words, a magnet is the seat of two forces, not one alone. The *crystalline force* passes through all solid bodies, but with different degrees of facility; it may also be transferred to other bodies, which may be charged with it by contact.

The same force, that is possessed by crystals and magnets, exists in the *human hand*. This, when passed over sensitive patients, acts upon them in the same manner; it exerts an attractive influence upon the hands of cataleptic patients; and it emits the same beautiful luminous phenomena—visible only to the sensitive—described above. In short the *crystalline force*, and (what has been called) *animal magnetism* "are absolutely one and the same; and therefore the laws, which regulate the former, admit of being fully applied to the latter."

Besides the three sources, hitherto mentioned, of this new power or force, the Baron has discovered that it resides in, or is generated by, other agencies and objects.—For example, the sun's rays, and the light of the moon* contain it in abundance; heat also, friction, and artificial light are, all, sources of it. One of the most prolific causes of the Magneto-Crystalline force is chemical action; and, as Digestion and Respiration are nothing but chemical processes, the Baron considers that these two functions are the great generators of it in the human body. The ghost-like luminous appearances observed by certain persons above graves, although unseen by most people that are in health, can now be readily understood: they are of a purely physico-chemical nature, being but one of the results of the

* "The action of the sun on sensitive patients agrees with that of magnets, of crystals, and of the human hand." * * * * * "Moonlight possesses a peculiar attraction, in virtue of which it acts on those affected with lunacy; nay, it may possibly cause that malady."

chemical action going on in the corpse.* "Many ghost-stories will now find their natural explanation."

As the Baron proceeded in his investigations, he found that all bodies whatsoever, in some degree, contain the new force, producing the sense of heat and cold to the sensitive, and emitting a luminous appearance in the dark,—the light being, however, variously coloured. It is, therefore, a universally diffused and active property of matter, although existing in variable and unequal distribution in different objects of the material world. Even the stars and planets are probably not without their influence, says our author, upon "our sublunary world, in practical matters, or in the working of the human brain."

Several other astounding facts (or fictions) remain to be noticed: what we have already specified will, however, suffice to give our readers a general idea of the (supposed) discovery of this new *force* in nature.

Dr. Gregory seems to be pretty confident of its truth. He tells us that, in the few instances in which he has repeated Reichenbach's experiments, he has found them entirely accurate; for example, that "crystals exert *an influence* on the human system in a large majority of persons; while in some, the sensitive, their action is exceedingly powerful." As a matter of course, much will be done in the course of the next three months, more especially by the believers in Animal Magnetism, in carrying out the subject; so that we shall probably have an opportunity of recurring to it in our next number. Meanwhile we hope that the result of their enquiries may not prove to be as fallacious as in the recent case of the Electrical Girl, that was at first vouched for by learned doctors and *savans* in the French Academy, and is now admitted to be all a hoax.

I. AN INQUIRY INTO THE HOMŒOPATHIC PRACTICE OF MEDICINE. By *W. Henderson*, M. D., 8vo., pp. 238. 1845.

II. HOMŒOPATHY, ITS PRINCIPLE, THEORY, AND PRACTICE. By *M. B. Sampson*. 8vo., pp. 218. 1846.

III. CONFESSIONS OF A HOMŒOPATHIST. Small 8vo., pp. 399. 1846.

IT is truly lamentable to meet with a publication like the first of these. Within the last 18 months or so, Dr. Henderson was professor of pathology in the University of Edinburgh, and one of the physicians of the Royal Infirmary in that city. He is now a homœopathic doctor, practising all the petty manœuvres of the Hahnemannian School. As a matter of course, he strives to conciliate the favour and deprecate the censure of his (sometime) brethren, by appealing to *facts*, to successful cases, and marvellous cures effected by the "new method." Drs. Culverwell and Courtenay, and Messrs. Morrison, Holloway, Curtis, &c., could beat him hollow at this game. Many of the cases, which he adduces in the way of illustration, are utterly worthless and contemptible; we should think that some of his (now) *confrères* will themselves be ashamed of them. We can hardly suspect Dr. Henderson of wilfully imposing upon others; that would be dishonest; but that he is wofully deluded is a *fact*, which none but a homœopathist can deny. We much fear that he thinks so himself now. He treats Pneumonia with phosphorus, Hydrocephalus with stramonium and belladonna, and Gastritis with arsenic!

The work of Mr. Sampson is a much more creditable performance; it is alto-

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* Dr. Gregory remarks that we can now account for the "corpse-lights in church-yards, which were often visible to the gifted alone, to those who had the second-sight, for example."

gether very well written, and not unfairly reasoned, considering that the author is only an *amateur-médecin*, one who has never been engaged in actual practice. Being an active *lay* member of the "English Homœopathic Association" —which ranks lords and learned doctors, clerks and wealthy merchants, on its committee—he was requested by that body to write a Treatise upon Homœopathy: the present work is the response to this invitation. It contains a good deal that may, somewhat profitably, claim the attention of the medical reader. The main argument of the writer against the "ordinary practice" of medicine, is based upon the fact of the inconsistency, and, too often, the utter contrariety of treatment recommended by different medical authors for the cure of the same disease. He quotes a variety of extracts from the writings of Craigie, Elliotson, and others in proof of this. Alas! there is too much truth in the charge. But, while we are candid enough to admit the partial force of Mr. S.'s argument upon this point, we must tell him that we cannot perceive an atom of sound reasoning, or of satisfactory evidence, in favour of his favourite system of Homœopathy. As for the fact of "its widest reception being found amongst the shrewdest, the most practical, and, on other than national subjects, the least prejudiced people upon earth—the inhabitants of the United States," we willingly give him the full benefit of its importance. The ingenuity of the analogical illustrations in the subjoined extract, will amuse, if not convince the reader:—

"That which renders the ridicule bestowed on the infinitesimal doses, by so-called scientific persons, still more surprising, is, that even the obvious considerations which have just been presented, are not needed to give rise to a supposition of their efficacy, since setting aside any process of abstract reasoning, there is enough in the ordinary phenomena of nature to enable the mere observer of daily occurrences to arrive at a conclusion regarding the 'possibility' of these doses proving effective. We all know that a moderate sized pebble may be applied to the surface of the eye without producing any unpleasant effect; while, if the same pebble were reduced to a powder, and one atom of that powder were applied to the same part, the most unendurable symptoms would immediately arise. We know, too, that persons may often be exposed to an atmosphere abounding with coarse dust, and suffer no injury to their health; while there are some trades in which the workmen are exposed to dust of a similar but much finer kind, which almost invariably induce consumption. Particles of steel, again, are known to produce equally injurious effects; and these effects seem to become more serious in proportion to the power which the particles, by reason of their fineness, may possess of insinuating themselves into the organization." Moreover, "if it can be supposed that disease such as cancer, &c., may be the production of an insect not yet detected by the microscope, and that this insect may have other beings preying upon it, and these again others, the belief that none but gross and ponderable influences can affect the system must soon become weakened, and the idea that medicines require to be 'finely touched' in order to lead to such 'fine issues' as the destruction of these agencies, must come to appear a natural, instead of a preposterous one."

The "Confessions, &c.," is a wretched performance, discreditable alike to the heart and head of the author. Medicine stands in no need of the aid of a bungling novel writer, who seeks to calumniate those whom she may consider to be mistaken or deceived.

THE HISTORY OF BRITISH FOSSIL MAMMALS, AND BIRDS. By *R. Owen*, F.R.S., &c. Octavo, pp. 560. London, 1846. Van Voorst.

THIS masterly manual of Palæontological Anatomy must be in the hands of every one, who takes an interest in the history of the fossil remains of the higher

vertebrate animals. The apocalyptic view which it presents of these tenants of the primæval world, ere man was formed to subdue and occupy the earth, suggests many a strange and startling reflection. Some rash and hasty observers in this field of enquiry have been led into the devious paths of a presumptuous and perplexing scepticism. But such will not be the case with the well-disciplined student of Nature. Each successive disclosure of her works—whether these be patent as the eye of day, or only seen "as through a glass, darkly"—will but impress his mind with a sense of deeper reverence before Him, by whom and for whom all things were created. It is not given to us to understand the end and design of many of the operations of His hand; but of this we may be assured, that the book of Creation, if looked at aright, will ever be found to harmonize with, and to throw light upon, that of Revelation.

It would be quite misplaced in a professional journal to review such a work as the present; but, as medical men of education are expected to be acquainted with the great and leading facts of geological Zoology, we strongly advise them all to peruse it. It contains elaborate descriptions of all the fossil relics of the higher vertebrates, from those "bones of contention" found in the Stonefield slate, (one of the secondary groups of rocks,) down to the remains that abound so largely in the diluvial soil of our country. Credit is due to the publisher for the admirable manner in which the work is *got up*; the paper and printing are excellent, and the wood cuts (237 in number) of unsurpassable beauty.

Dr. Arnott on Therapeutic Enquiry, pp. 57.—We regret that we cannot report favourably of this little work. Its design is good, and the subject is an interesting one; but then some of the statements which it contains are so strange, and one or two of its suggestions so extraordinary, that practical men will not be very willing to take Dr. A. as a guide in professional matters generally. Severe and continued vomiting is recommended as an almost infallible remedy in malignant sore throat. The inhalation of the nitrate of silver (suspended *in the air*) is proposed in diseases of the respiratory apparatus. The *modus operandi* of bloodletting, in removing rigidity of the uterus during parturition, is stated to be unknown. Allusion is made to the cure of a case of Hydrocephalus by the accidental evacuation of the fluid, from a nail penetrating the skull. In well-marked cases of apoplectic hæmorrhage, (the usual seat of which is the *corpus striatum*.) Dr. A. proposes that an opening be made through the skull, meninges, and the brain itself, for the removal of the effused blood. Need we comment upon this?

On Scarlatina, &c. By J. B. Brown. Pp. 66.—This is a very flimsy and offensive production—flimsy, because its story might have been told in a couple of pages; and offensive, because under the guise of philanthropic and worthy professional motives, it is little better than a self-laudatory advertisement. Indeed, the author very coolly says that he wishes it to be read by parents and heads of families, (how disinterestedly considerate!) as well as by members of the medical profession." Distilled vinegar, in frequently repeated doses of from half a tea-spoonful to a dessert spoonful, is declared to be an almost specific remedy for all forms of Scarlatina. We must not forget to add that Mr. B. applies lunar caustic—either solid or dissolved in water (10 grains to the ounce) —to the throat, from the first blush of the disease. Such being this gentleman's *practice*, it matters little what may be his *theory*. Those who wish to know, may consult his book.

Dr. Monat on the Bengal Medical Returns.—This is an ably written pamphlet. Dr. M.'s strictures on the nosological tabular forms issued to the medical officers in the E. Indian army are, on the whole, perfectly just, and deserve the attentive consideration of those in authority.

Periscope;

OR,

CIRCUMSPECTIVE REVIEW.

Selections from the Foreign Periodicals.

Treatment of Cutaneous Diseases.

1. *By Alkalis.*—M. Devergie states that alkalis are highly beneficial in skin-diseases, especially those of the *lichenoid* form. Their *internal* exhibition is indicated whenever the cutaneous affection is connected with gastralgia dependant upon acid secretion, whatever may be the anatomical character of the eruption: and their *external* employment is of service in papular and squamous diseases. Completely successful in the first of these categories, they are less so in the second; and are only to be used when the disease is chronic in either. The bicarbonate of soda or potass, may be given in moderate doses (3j. ad ℈j. per diem,) either in water, Vichy water, or a slightly bitter and stimulant tisane, (*Bic. Pot. 5 parts. Infus. of Lime-leaves* 125 *pt. Syrup of Mallows* 45 *pt. Spt. of Mint gtt.* 25. Take two or three spoonfuls per diem.) The digestive functions become re-established, the appetite especially increasing in vigour. If the doses given are very large, the fibrine of the blood becomes diminished in consistency, disposing to the production of glandular swellings and passive hæmorrhages. *Alkaline ointments* are often employed too strong, and M. D. only orders ¼ or one part of *Subcarb. soda* to 30 parts of lard in cases of *lichen*, and from 1 to 2 parts to 30 in *psoriasis, lepra*, &c. The following is an alkaline liniment he employs. *Carb. Sod. or Potass* 30 *pts. Ol. Oliv.* 125 *pts. One yelk of an egg.* M. When we have to do with an affection of the hairy scalp, we may use a stronger ointment by increasing the proportion of soda (4 or 6 pts. to 30,) substituting subcarb. potass for it, or adding to either its own weight of slaked lime. When employed in *lichen*, for which these remedies are pre-eminently adapted, the itching is very speedily allayed; but they must be continued a certain time after the disappearance of the papulæ, or a relapse will occur.—*Bulletin Générale.*

By Caustics.—M. Duchesne-Duparc has recently published an interesting paper upon the application of caustics to the skin. Some of the forms of *erythema* among the inflammatory diseases, derive great benefit from the nitrate of silver. Thus a pencil, or solution (5 or 10 parts to 30 of water,) may be usefully employed in the *intertrigo* of the ears of children, when ulcerations have commenced, whose surfaces are covered with a thick coagulum. If care be taken not to destroy commencing cicatrization, it may be frequently re-applied with great success. In *chilblains* and *chronic erythema*, applying the *lapis infernalis* to the part, and some little distance beyond, is successful. In *erysipelas*, when we wish to prevent the invasion of important parts, or circumscribe its extension, we must encircle it with the nitrate of silver, extending beyond its margin, or if the erysipelas be but small in extent, we may cover the whole surface with the same. It requires frequent renewal and is more efficacious, as it is applied nearest the commencing point of the disease, and effectually influences that part. In *traumatic erysipelas*, the actual cautery, which at a white heat causes little pain, arrests the disease at once, and leaves neither suppuration nor

scar. When the patient will not submit to this, the frequent renewal of the nitrate of silver lotion must be substituted.

The various forms of *herpes* yield readily to caustics. When the vesicles are few and widely separated, each may be opened separately, the matter it contains, if abundant, squeezed out with a piece of lint, and the interior very lightly touched with a fine pencil of *lapis infernalis*. When the vesicles are confluent or agglomerated, it is better to cover them with a thin layer of nitrate of silver, or apply a concentrated solution of this substance to them. Cauterization carefully performed (1) abridges the duration of the disease: (2) prevents the formation of excoriations and eschars, which follow herpetic eruptions, (especially in old men,) when left to themselves, and particularly when they are seated on the posterior part of the trunk; and (3) in the great majority of cases, prevents the pains, which are often severe, and prolonged for a considerable time after the disappearance of the eruption. A marked proof of the benefit of this treatment is derived from the fact that, slightly touching the red spots which precede the vesicles prevents the development of these, although it does not always relieve the severe pains which attend them. We agree with M. Rayer, that slight and discrete herpes may be left to itself: the nitrate being, however, always a precious resource when eschars are to be feared in one or more groups seated on the face or trunk.

Although in the exanthematous form of *urticaria* caustic is not indicated, it is the best of means for the relief of the swelling and itching in the form which appears in detached tumefactions, resembling the stings of insects or plants.

M. Velpeau states, that when applied within three days of its appearance, caustic will at once arrest the progress of a *furunculous tumour*, which, however, Rayer denies. M. D.'s experience is in favour of the former opinion; and he explains the want of success attending the use of caustic by the timid manner in which it is applied. A concentrated solution of the nitrate, or the moistened lapis infernalis, should be employed. It is not meant to say that all cases will yield to this, as some may require constitutional treatment.

It is certain that the development of the pustules of *small-pox* may be arrested by caustic during the two or three first days of their progress. M. Bretonneau's mode of applying it is perhaps the preferable one; viz., removing the point of the pustule with a gold or silver needle, and cauterizing the bottom with a pencil of lapis infernalis, or with a probe dipped in powder of the same substance. When *vaccination* has been performed in an improper situation, the abortion of the pustule may be brought about by the same means.

The obstinacy of *favus* is well known, and the efficacy of caustic is explained by the fact, that the disease is maintained by a vegetable parasite seated in the epidermis. Here *Ammonia* is the best caustic (*suet, and liquor. ammon. eq. p.; or ol. oliv. 1 part, ammonia 1 or 2 pt.*) In young persons and adults the application must be retained for an hour; but in very young children, the proportion of ammonia and period of its application must be both diminished. In all cases the whole disease must be brought away, or a fresh crop will soon appear.

In *dartrous* affections caustic is a valuable means. Thus, in *pityriasis, psoriasis, lepra, icthyosis, &c.*, the vitality of the surface undergoes a favourable modification by the use of mild caustics. In *eczema*, when the patches are circumscribed and of old date, the more powerful caustics are required, such as the acid nitrate of mercury or muriatic acid. In *impetigo* caustic is only proper for old, isolated patches. We must not use caustic at the commencement of any form of *acne*, but after a while, when the follicles become distended or burst, and a number of little diffused phlegmons, which equally resist antiphlogistics and astringents, result, the application of a saturated solution of *sulphuret of potass* to the point of the tubercle is highly useful. The application is to be retained for 15 or 20 seconds, and after a quarter of an hour, any pain or irritation it may have given rise to, is to be allayed by calming lotions. To be of use, this application must be continued for a long period, the evening being the best time of using it. Very

obstinate cases of *mentagra* and *couperose* have yielded to it when they have defied all other means.

After alluding to the use of caustics in cancer, lupus, scrofula, and the syphilides, M. D. concludes with these general rules.

1. When the skin is thin and abundantly supplied with vessels and nerves, the mildest caustics must be used. This is especially the case with the face, and the nitrate of silver there usually answered all the requisite indications. 2. We must not attempt to cure the disease alone by caustics, except when it possesses no depuratory character, is connected with no diathesis, and can be looked upon as an isolated, accidental, morbid centre. 3. Caustic is no less useful when it does not alone suffice for the cure. Its use in reviving a languid inflammation, in stimulating flabby, inactive tissues, in repressing exuberant growths, and in remedying disorders of the innervation of the parts, is very great. 4. As each separate caustic acts upon healthy tissues differently as regards its intensity, mode of influence, and re-action, one must not be indiscriminately employed for another. 5. The mode of cauterizing varies according to the object we have in view. If it is a mere adjuvant, the application should be superficial and limited. If it is an essential means of cure, its action should involve all the diseased parts, and often extend beyond them.

ON THE USE OF KERMES MINERAL IN DISEASES OF THE RESPIRATORY ORGANS. By *Dr. Herpin* of Geneva.

Dr. Herpin has diligently observed the effects of this medicine during eight years, and has arrived at some interesting conclusions respecting it. If we consult dictionaries, dispensatories, &c., we find this substance stated as being chiefly indicated in chronic and suffocative catarrh, humid asthma, and at the termination of pertussis and pneumonia, especially in aged persons. Dr. Herpin reports differently. He says he has never seen its use followed by even temporary benefit in the latter stages of *pneumonia* in the aged, when the mucous *râles* are abundant, and asphyxia imminent. Given too at the commencement of pneumonia following capillary bronchitis it is far inferior to tartar-emetic: and alterative doses of this same remedy are also far superior to it in the capillary *bronchitis* of old persons and children. The same want of success attended its trials in asthma and pertussis.

But when the disease, instead of being situated in the parenchyma and smaller bronchi, occupies the *larger passages* the result is very different. Laennec and all those who have come after him have repeated the erroneous statement, that *bronchitis*, from its very commencement, when a mere coryza, imparts to the ear a loud *râle*. Dr. Herpin some time since showed that bronchitis at the upper part of the tube, accompanied by considerable secretion, gave no auscultatory sign whatever. It is in these cases, where no anormal sound exists, that *Kermes* is so useful, and is most so in the acute stage. He does not mean to say that it will arrest the progress of every pulmonary disease beginning without auscultatory signs, for hooping-cough, pneumonia and phthisis are among such. The catarrhs commencing at the upper part of the tube are soon arrested; but if *râles* announce the supervention of deep-seated bronchitis, other medicines must be resorted to. In *tracheitis*, (denoted by pain opposite the top of the sternum, sometimes difficult deglutition, a hoarse, tearing paroxysmal cough and hoarseness,) the Kermes is still more indicated. No other medicine produces so rapid an effect in *laryngitis*, a few ½-grain doses often removing the hoarseness in a few hours, when the disease is recent. In this way it is of great service to singers. *False-croup* is very advantageously treated by it, and if seen early enough, it may be of good service in the true disease. *Chronic laryngitis*, when not dependent upon phthisis, may be benefited by this medicine, but in an

inverse proportion to its duration. Even when it does not cure it (for relapse is very frequent) it gives at least great relief. In the only case of *thymous asthma*, Dr. H. has had an opportunity of trying it, and which was a very bad one, it succeeded completely. In affections of the *pharynx* no success followed the use of the medicine, unless indeed these were connected with disease of the larynx. A frequent cause of *deafness* is a catarrhal condition of the extremity of the Eustachian tube, and in this case the Kermes effects a cure if the deafness has not existed beyond some weeks, and even alleviates it frequently when of very old standing. From his observations, Dr. H. believes he may deduce the conclusion, that *Kermes is to some extent a specific for the affections of the upper portions of the air-passages.*

The *dose* has varied from 1 to 12 grs. in the 24 hours. M. H. has never exceeded the latter quantity, and, as a general rule, from 3 to 6 grains suffice. If we except infants less than 1 or 2 years old, the dose need not be much varied on account of age, children tolerating the remedy almost as well as adults. It may be given in an emulsion, powder with sugar, lozenges or pills. At the commencement of the affection, or when the respiration is much oppressed, it is desirable to excite vomiting. Three grains will certainly effect this, as will sometimes one or two in adults, and half a grain in children. To avoid purging or vomiting, we should give only very small doses, and after meals. When tolerance is once established, the Kermes does not irritate the stomach again. When first given it causes a sense of heat and dryness in the throat, which soon becomes relieved by an increased humidity and expectoration. Dr. Lombard, who has employed this medicine with excellent effects, has often observed rose-coloured streaks in the expectoration; but these soon disappear.

CARBONATE OF IRON IN MENORRHAGIA, &c.

Dr. Malherbe observes, that believing in the emmenagogue character usually attributed to preparations of iron, he had never ventured to use them in uterine discharges, until he had perceived a case of menorrhagia occurring in a chlorotic girl, and advantageously treated by chocolate-iron, recorded in Trousseau and Piodon's *Treatise on Therapeutics*. Since that time, he has repeatedly used the subcarbonate of iron with the best effects. He selects for description thirteen cases of menorrhagia, occurring in women of very different ages and temperaments, and in whom the only symptom in common was an abundant loss of blood at regular or irregular menstrual periods. Acute, as well as chronic cases yielded to the subcarbonate, which was given in doses of from ½ to 1 ℈ at varying periods of frequency. He concludes, "That the subcarbonate of iron is not an emmenagogue, but, on the contrary, arrests or moderates the menstrual flux, arrests uterine hæmorrhages, and is in fact one of the most powerful hæmostatic means we have at our disposal."—*Journal des Connaissances.*

QUININE IN EPILEPSY.

It is to be remembered that epileptic paroxysms, without observing a regularly intermittent course, nevertheless retain at epochs more or less distant from each other. Quinine, therefore, which generally succeeds so well in periodical neuralgia, even when these are not strictly intermittent, deserved at least a trial among the multitudinous remedies which have been proposed. M. *Piorry*, at *La Pitié*, has for a long time employed it, and has cured a certain number of patients hitherto reputed incurable, these patients having been retained long enough in the hospital to prove that the course was not merely temporary.

The mode of administering this remedy is of consequence, for the dose must

be large. Begin with 18 grains *per diem*, and gradually increase this until from 50 to 70 grains *per diem* are given. The medicine has to be continued for a very long period, as the cure is always slow, and cannot be always pronounced definitive until months or even years have expired.—*Gazette Medico-Chirurgicale.*

(In a disease so distressing and so intractable as epilepsy, any means of cure, even although not universally applicable, will be gladly resorted to. But we must confess that doses of Quinine so large as the above, and continued for months, seem to us unadvisable. The reader will find in the 10th Vol. of the Memoires de l'Académie (*Med. Chir. Rev., No.* 78, *p.* 306,) a paper from the pen of M. *Melier*, exposing the dangerous and even fatal effects of the large doses of Quinine sometimes employed in France.—*Rev.*)

M. ROUX ON EXCISION OF THE ELBOW JOINT, &c.

M. ROUX, one of the earliest performers of this operation, made a few remarks upon it in a recent clinical lecture.

The case of the young woman upon whom I am about to operate presents some peculiar features, which have influenced me in preferring excision to amputation. She is the subject of white-swelling in each elbow, and, at the time of her admission, the left one had already become anchylosed at an obtuse angle, so as to be useless to her. The disease on the right side, after making much progress, has become stationary, and, although much pus is yet discharged from fistulous openings, it is possible that anchylosis of this arm might also be produced. But a more helpless and unfortunate condition than that resulting from such a double anchylosis can hardly be imagined, and, to prevent this, I have recommended excision of the enlarged extremities of the bones. Those who are not familiar with the operation, and are unacquainted with the results which have attended its performance, may inquire in what manner it can conduce to this patient's benefit; and it is, therefore, of importance that I should state, I have never known an anchylosis follow excision. The bones of the arm, by reason of a species of false joint being formed, invariably retain a more or less considerable degree of mobility upon the humerus, so that the patient is enabled to execute many of the normal movements of the limb. In proof of the considerable degree of usefulness of the extremity that is attainable, I may cite the case of a patient upon whom I operated seven or eight months since, who is able to take up the various objects of ordinary use, carry his hand to the mouth, and, in fact, perform various and extensive movements with it. I have seen many curious examples of persons who have been enabled to undertake occupations requiring both dexterity and strength.

In the great majority of cases it is in order to arrest the progress of the disease called *white-swelling* (vague as is this term, it is preferable to any of those which have been proposed in lieu of it,) that excision is practised; but there are other circumstances, as gun-shot wounds, &c., in which it may be required. There are cases of this disease in which the soft parts surrounding the joint are affected rather than the ends of the bones themselves; but, even in such cases, in which the bone is not the seat of the principal changes, the operation is yet very useful—the fungoid condition of the soft parts disappearing after its performance.

Although never performed so frequently as at the present period, this operation is not a new one; but we have no particular account of the mode of its performance in former times. Even now it is by no means generally adopted, and there are surgeons, both in France and other countries, who do not admit that excision is ever advantageous. Indeed, in France, the country of its revival, very few surgeons are in favour of it, and it is performed much more

frequently in Germany. Perhaps M. Textor, of Wurtzbourg, has had recourse to excision more frequently than any other practitioner, and that not only in disease of the small and medium-sized joints, but also in affections of large ones, such as the knee. I have performed excision a great number of times, but my operations have been far less frequent than those of M. Textor. Moreover, warm partisan as I am of excision, I should not like to perform it upon the knee, and should not be without some fears of the possible results of such an operation. When M. Textor was in Paris, three or four years since, we compared the results we had obtained; and, it is a curious fact that, we each reckoned up fourteen cases of excision of the elbow; and of these fourteen, we both had lost four patients.

The result of my experience has shown me that, although excision of the elbow is a long and laborious operation, the large and deep wound which it leaves unites entirely, or nearly so, by the first intention: and, even when an extensive suppuration is set up, it is rare that any ill consequences follow. Statistics prove to us that there are much fewer deaths after resections than after amputations. (!) Observe the enormous difference between the two operations. Amputation deprives the patient of his limb, and exposes him always to more or less danger. Resection is a somewhat longer, more painful, and more difficult operation, but it preserves the limb, permits eventually more or less extensive movements, and presents very few unfavorable chances. As we have already said, the elbow is of all joints that upon which resection can be performed with most advantage, and least danger. The tibio-tarsal is the most favourable joint of the lower extremity for the operation.

But although resections of the lower extremity are much more dangerous than those of the upper, they should not be proscribed in all cases. I have seen resection of the upper portion of the femur performed with success, as also of the bones constituting the knee-joint. Another reason, besides the danger, why I am less disposed to approve of these resections, of the bones of the lower extremity, is that one of their especial functions is to support the weight of the body. These joints then require, on the one hand, great mobility, and, on the other, great solidity and power of resistance. Thus, for example, a patient upon whom a resection of the head of the tibia has been performed, and in whom a complete anchylosis has not supervened, is in a worse condition than if he had undergone amputation of the thigh. A lower extremity, without complete anchylosis, would furnish a very insecure support. I have performed the operation upon the knee but once, and that upon a patient who strongly insisted upon it. I found it impossible to maintain the leg extended on the thigh; and this leads me to observe that, in the persons I saw in Germany who had undergone this operation, I frequently observed the limb half flexed upon the thigh. I could not learn whether this position was the choice of the patient or surgeon, or whether it constituted an accident in spite of the operator. My patient died on the 18th day, a very abundant suppuration having established itself. In regard to operating upon the upper extremity of the femur, the diagnosis is somewhat difficult, for if the disease extended to the bones of the pelvis it is obvious there would be no use in it. It is a long time since I performed resection of the tibio-tarsal joint, which I have done three times in all.

The joints of the lower extremity, however, have a greater tendency to anchylosis than those of the upper. It is very rare for this to occur after excision of the shoulder or elbow-joints. This is a vast advantage, especially as regards the elbow, and it would almost seem that the foresight of nature accomplishes the desires of the surgeon. The extremities of the bones become rounded; their inequalities are effaced, a sort of newly-formed cartilaginous crust covers them; the muscles contract new adhesions; and lastly, the movements, although somewhat anormal, and less extensive than in health, are established.—*Gazette des Hôpitaux.*

DISCHARGE OF SEROUS FLUID FROM THE EAR IN FRACTURE OF THE BASE OF THE CRANIUM.

This fatal symptom has formed a subject of frequent discussion in the French Medical societies of late, and several papers relating to it have been published in recent numbers of the *Archives Générales*. *M. Laugier, of l'Hôpital Beaujon*, claims being the first person who directed attention to it in 1835; since which time many cases have been recorded. In 1839, he wrote of it as follows:—

"It consists in the flowing from the ear of a greater or less quantity of an aqueous fluid, at first lightly tinged with blood, but soon after limpid and colourless, being in fact the serosity of blood effused into the cavity of the cranium, between the dura-mater and the bones. The motions of the brain gradually express it from the coagulum, which is thus reduced in a few days to a thin layer, no longer capable of exerting compression upon the brain. The flow of this fluid, considered by itself, independently of other phenomena, indicates—1. The existence of a fracture of the petrous portion of the temporal bone.—2. That this fracture is a mere fissure; for, when a wider separation of its borders occurs, it does not act as a filter, but allows the entire mass of the fluid blood to pass through.—3. The presence of effused blood upon the fissure of the petrous portion, an important indication, if symptoms were such as to render the use of the trephine requisite."

M. Laugier observes, that all subsequent experience has shown the correctness of the two first conclusions; but that the source of the fluid has been disputed both in France and England. Thus it has been urged, that the *quantity* of fluid discharged is far too considerable to allow of the supposition that it proceeds from the compression of the effused blood. From 12 ozs. to 24 ozs. have been collected. M. L. does not pretend that all this is obtained from the serum of the effused blood; for, in all wounds of soft parts or bones, there is always much serum poured out until suppuration is established. We see this after amputation, the abundance of the serum discharged in these cases being considered by Dupuytren of importance, as showing no danger of secondary hæmorrhage existed. M. L., however, admits that the analysis hitherto made of this fluid shows that it differs much from the *composition* of the blood, in the absence of albumen and in the presence of too much chloride of sodium.

Various other explanations have been proposed. Thus, the discharge has been attributed to an augmentation of the naturally trivial quantity of fluid contained within the labyrinth—the *liquor cotugni*. The quantity discharged would seem sufficient to refute this opinion; but it may be also stated, that the fracture, in some instances, does not extend into the labyrinth, and in other cases it has done so without any larger secretion taking place. Guthrie states the fluid probably proceeds from the sac of the arachnoid; but, in none of the cases observed in France, have the arachnoid or dura-mater been ruptured. M. Bodinier has of late stated his belief that, owing to the effusion of blood between the dura-mater and bones, the arachnoid fluid penetrates its membrane by *exosmosis*, and endeavours to justify his opinion by some not very satisfactory experiments on the dead body. It is to be observed, also, that in one case in which the discharge from the ear was very abundant, there was no effusion of blood between the dura-mater and the bone. M. Laugier, therefore, reiterates his opinion, that a *fissure* always exists in the petrous portion of the temporal bone, extending from the cavity of the cranium to that of the tympanum, or to the external auditory canal, and that the fluid is furnished by the effused coagulum, and by the vessels torn through in the solution of continuity.

M. Chassaignac, in a communication to the same journal, offers another explanation. He observes that, of all the bones of the cranium, the petrous portion of the temporal is in most intimate connection with the large venous

trunks and sinuses. The parietes of these vessels, which are attached to the bone, are very thin and delicate, so that the slightest fissure even would open into them; and, owing to the numerous and irregular points of contact between the sinuses and the bone, it is difficult to believe any portion of the latter can be fractured without the former becoming implicated. The details of a case which fell under his care are very minutely given, and the following general conclusions drawn:—"1. To appreciate the nature of these cases, we must examine the condition of the sinuses. To do this, we mus tslit up the non-adherent walls of each; and, after washing, carefully examine the adherent parietes from within.—2. The theory which indicates the spino-cephalic liquid as the source of this aqueous discharge, is in contradiction with those cases in which the fracture does not penetrate the meatus auditorius internus; it supposes a constant laceration of the meninges, which is often absent; it is supported by very doubtful experiments, and it supposes the rupture of the arachnoid layer serving as a sheath to the auditory nerve, which has not yet been demonstrated.—3. The petrous portion surrounded on almost every side by copious supplies of blood, is that of all the cranial bones, around which the greater number of venous channels is concentrated. Moreover, the sinus of the jugular vein, which contains the largest collective portion of blood in the cranium, is in such a relation to the petrous bone, that a fracture or fissure of the bone may easily induce a small rupture of this vessel.—4. The periosteal walls of the sinuses being much thinner and tenser than the meningeal walls, are more easily torn.—5. It is almost impossible to suppose a fracture can occur in any part of the petrous bone without implicating a sinus.—6. It is then a rupture of the adherent wall of the sinuses, which allows these cavities to furnish the aqueous fluid seen dropping from the ear—the colourless portion of the blood separating when the fracture is very narrow, the coloured portion passing through when the separation of the edges of the fracture is wider."

M. *Robert*, in a communication subsequent to the above, states, as *the result* of the examination of the anatomical conditions of the cases observed by *himself*, and related by others—"That an abundant aqueous discharge from the ear, observed in fracture of the skull, indicates the existence of fracture across the middle portion of the petrous bone, involving the internal meatus, the labyrinth, and the inner wall of the tympanum: and complicated by the rupture of the membrana tympani." He believes the duplicature of membrane passing in with the auditory nerve is ruptured, and in this way the cerebro-spinal fluid discharged. He found such rupture during the careful examination of a case; while chemical analysis proves that the fluid discharged from the ear, and the cerebro-spinal fluid, are identical in composition.

In another case, related at great length, a copious aqueous discharge from the *nostrils* was observed. After death a fracture was found, implicating the cells turcica, rupturing the arachnoid of the pituitary gland, and opening into the sphenoid sinuses.

M. *Kuhn*, of Niedermann, having seen an account of M. Laugier's cases, transmitted to the *Gazette Médicale* the history of one he met with a few years since. A boy, aged four years, jumping from a window eight feet high, fell upon his head, producing a contusion a little above the right meatus auditorius, without, however, any solution of continuity of the scalp. Paralysis of the lower extremities followed: he vomited much, and blood flowed from the ear; but his intellectual faculties were unclouded. Six hours after the accident, the blood from the ear was replaced by an aqueous fluid, which continued to drop from the passage for four days, so that it was calculated that between *three and four pints* must have in this way distilled. On the fourth day, the issue of this fluid suddenly ceased, and the child complained of violent pain in the head. This was of short duration; the paralysis, also, became less complete, and the child, in a few days, became entirely well, and has continued so ever since, with the exception of slight deafness.

ON THE CURE OF ERUPTIONS OF THE HEAD AND FACE IN CHILDREN.

M. *Trousseau* makes some interesting remarks, in his *Journal de Medecine*, upon the rules that should guide the practitioner in endeavouring to heal the eruptions, sores, &c., which affect the head and face of young children. To avoid circumlocution, we will employ, in the extracts we make from the paper, the term by which these are designated in France—*les gourmes*—equivalent to our appellation "breakings-out."

It is a popular opinion that danger attends the attempt to heal these, and this is sometimes true when their manifestation is connected with a morbid diathesis. Others, however, unconnected with this, do much mischief, and should be healed at once. A diathesis may be acquired or congenital; and the *suppurative diathesis* is that which of all others is most evidently acquired, The "*gourmes*" are, indeed, generally one of the manifestations of this; while in other cases the *dartrous* diathesis, which is usually hereditary, plays an important part in generating the eruption. The form of the "*gourmes*" will vary, according as one or other of these prevail. Impetigo, ecthyma, impetiginous eczema, intertrigo, furunculus, superficial phlegmon, and ophthalmia, are more especially connected with the suppurative diathesis; while lichen, psoriasis, eczema rubrum, pityriasis favus, and chronic inflammation of the eyelid, are more often dependant upon the dartrous diathesis.

1. When, from distress, neglect, or other cause, a superficial phlegmasia becomes in the course of several months converted into a suppurating sore, in the groin, behind the ears, or upon the scalp of the child, the economy, which at first suffered from the presence of an useless discharge, accustoms itself to it to such an extent that, although its suppression at an early period would have been very advantageous, this must now be accomplished cautiously, or disease and ill health will result. 2. Again, when an impetigo suddenly develops itself in a child previously in ill health, and becomes chronic; the health may become manifestly improved as long as the eruption continues. It is evident that, for a certain period at least, it should not be meddled with, and even then that its cure should be very cautiously undertaken. 3. The development of the "*gourmes*," may be the signal of serious disorders in a child prior to this in good health. In this case their cure, if fever be present, should be set about at once without any fear of the pretended effects of a retrocession. 4. When a child's health is good, we must endeavour by every means to prevent the establishment of the "*gourmes*;" for, if suppuration be accidently established, it may give rise to other suppurations—in fact, generate a suppurative diathesis. This diathesis again may manifest itself, not only on the skin and mucous membranes, but also in the internal organs; and thus, in children suffering from "*gourmes*," variola, rubeola, scarlatina, &c., are always more fatal. 5. When the "*gourmes*" invade important parts, as the eyes, nasal fossæ, auditory canal, &c., we must use every means to prevent their extension.

Treatment.—The superficial *excoriations* which are found behind the ears and between the folds of the skin in gross children, usually arise from negligence, and often disappear upon the mere observance of cleanliness. Soapy baths, dusting them with lycopodium, of the interposition of lint moistened in olive oil, usually suffice to dry them up; but when they are obstinate, white precipitate ointment, (℥j ad ℥x axung,) or Galen's cerate, may be employed. Frequently, to cure the intertrigo behind the ears, it suffices to take care that the string of the cap be not too tightly tied, or to prevent the surfaces of the skin from coming in contact with each other.

Impetigo, *impetiginous eczema*, and *ecthyma*, in their *acute* form, require special

treatment. Dr. Trousseau, regarding the two first as true eruptive fevers, just as scarlatina, variola, &c., is careful in not suppressing them too rapidly, although he does not encourage their development. So far from this, believing with Sydenham, that our object should be to prevent eruptive diseases becoming confluent, he prescribes prolonged baths, abstinence, acid drinks, and mild laxatives. The children are not to be too much covered up nor to be kept in bed. Excessive cleanliness is to be observed, and great care taken that they do not scratch the pustules, and diffuse the disease with their nails over other portions of the body. When the febrile action has ceased, we have to do with a mere local disease, and must get rid of it as soon as possible. Unfortunately, however, impetigo oftentimes succeeds to measles and scarlatina; in which case, our proceedings must be more circumspect. If the impetigo be too rapidly healed, in this case, the lungs or some other internal organ will very probably become diseased, we having thus destroyed the revulsive affection of the skin which acted as a preventive, or as a curative if they were already affected. There are circumstances, however, in which such caution would be misplaced. Thus a violent inflammation of the ocular mucous membrane may spread to the eye itself, or a very severe eczema behind the ear may give rise to dangerous or even fatal enlargement of the cervical glands. In both these cases we must at once cure the eruption, as it gives rise to greater evils than we have reason to fear from its repercussion.

When the *impetigo* and *eczema* become chronic, and the condition of no internal organ causes alarm, I treat them with baths, ointments, lotions, purgatives, blisters, or depuratives. *Alkaline baths* are the best of remedies when the disease is attended with itching. To 75 or 100 quarts of water I usually add from 12 to 20 drams of sub-carbonate of soda or potass. These baths most effectually clean the skin, soften the crusts, and relieve the pruritus. The dreadful suffering this last causes proves its relief alone is no slight advantage. With a solution rather stronger than that employed for the baths, lotions may be made and locally applied two or three times daily. These baths are suitable for the *dry forms of eczema*, for *lichen*, and for *pityriasis*. But when the *eczema* is very *acute*, and is accompanied by great redness and abundant discharge, *mercurial baths* are to be preferred. I prepare these by adding to 50 or 70 quarts of water three or four scruples of corrosive sublimate, dissolved in 1 oz. or 1½ oz. of alcohol. I have used these baths for fourteen years in every variety of dartrous affection of the skin with the greatest advantage. Some practitioners consider them dangerous, but I order about a thousand annually, and even for women in the weakest state and children of the earliest age, without ever seeing any accidents result from their employment. I have had children placed in these baths, half the skin of whose bodies had been destroyed by eczema, and no injurious absorption of the mercury has taken place, while the epidermis has become regenerated in a few days. Very young infants should not be kept in the bath more than a quarter of an hour at the farthest, but those who are more than a year old may be retained in for half an hour. The severest forms of *eczema*, *lichen*, *erythema*, and *impetiginous eczema* soon yield to these baths, and they form the most appropriate treatment for the *syphilides* of infancy. In simple, chronic *impetigo*, I find *sulphureous* baths, formed of 1 or 2 drams of sulphuret of potash to 50 or 70 quarts of water, best. But they are especially indicated in children covered with furunculi or little sub-cutaneous abscesses. The action of these baths is no doubt chiefly topical, for ointments composed of the same materials and applied to circumscribed spots are as useful; but when we find the alkaline baths correcting acid urine, and the mercurial baths relieving syphilis, it is evident that some portion of their material is absorbed, as is also shown by the odour which the sulphureous baths impart to the secretions. Indeed, experience has proved the efficacy of alkalis and mercurials, taken internally, in moderating the dartrous diathesis, which manifests itself in herpetic eruption.

When the affections of the skin are very limited, *lotions* composed of the

same materials, in larger proportions than in the baths, may be substituted. The strength of these must depend upon the susceptibility of the skin, and condition of the lesion; but the practitioner must not be afraid of using them pretty strong, as the temporary irritation they excite is often advantageous to the affection. In the treatment of "*gourmes*" of the hairy scalp, the sulphuret of potassium may be employed in such strong solutions as to be almost caustic. The *temperature* of these lotions should be as *high* as can possibly be borne. This may seem strange advice at first, but doubtless much of the efficacy of the vapour-bath in cutaneous affections depends upon the great heat thus produced, and the success attendant upon the employment of infusions of simple herbs by empirics in like manner results from their using these very hot.

Among the *ointments* those containing *mercury* occupy the very first place. White precipitate and calomel are usually to be preferred to red precipitate; but nothing absolute can be stated, for in apparently identical affections, sometimes the one and sometimes the other preparation proves most efficacious. The two former may be used in the proportion of one part to five or ten of cerate, and the red precipitate half as strong. In some children lard, and in others cerate, forms the best vehicle. In some diseases of the hairy scalp, alkaline or sulphureous ointments are preferable to the mercurial ones, and this is the case especially in the moist and scabby forms. In the dry and squamous forms, ointments formed of mercury, of pitch, or of sulphate of copper, are highly useful. But I cannot too often repeat, that we must try various means, and neither allow ourselves to be too much encouraged by former success, or discouraged if we find a remedy useful in some cases of no avail in others. Even for the same disease, the practitioner should always be provided with a certain variety of remedies, which will all, some day or other, be required.

I now come to the consideration of the employment of *blisters*. And first, let it be observed that a substance, such as Burgundy pitch, croton oil, or mercurial ointment, which when applied sometimes gives rise to the production of a local crop of vesicles, occasionally also leads to a *general* eczema, first acute and then chronic. This is a rare occurrence in men, rather more common in women, and very frequent in children. A few months seldom pass without my seeing, in hospital or private practice, an acute. simple or impetiginous eczema attack children, after the unavoidable employment of a temporary blister in pneumonia. Generally the disease assumes a chronic character; and if we consider that, up to this time, the child was not the subject of any cutaneous affection, we must admit the blister has been at least the occasional cause of its production. Seeing, then, that in a healthy skin a blister may develop a chronic cutaneous affection, ought we to attach much importance to this means for the treatment of "*gourmes*," and rather ought we not reject it in the majority of cases? I have now in my wards a young child who, when the subject of a slight lichen upon some few points of the skin, was ordered a blister by its attendant. A few days after, the arm to which this had been applied was covered with eczema, which quickly spread over the rest of the body. I have frequently, in obedience to routine or theory, applied blisters to children affected with "*gourmes*," but have often repented doing so, and seldom seen benefit result. Believing, then, blisters only cause additional irritation without relieving that already existing, I proscribe them in cutaneous affections; but I employ them in treating the "*gourmes*" of the mucous membranes. Experience has often shown me disease behind the ear, or of the hairy scalp, alternating with ophthalmia or chronic eczema of the nasal fossæ, as if the two affections were incompatible. In this case, a blister to the arm is generally useful, although sometimes the derivation will not establish itself in the direction chosen by the attendant, but obstinately tends towards its original route. We may leave the blister on the arm, at the same time endeavouring to encourage the fluxion where it seems most willingly and beneficially inclined to place itself. But if blisters are of use in the cure of these, so to say,

alternating "*gourmes*," they are not so in "*gourmes*," resulting from *propagation*. Thus, we may often see an impetiginous eczema gradually invade the forehead, eye-lids, conjunctiva, the rest of the face and penetrate into the nose. I call this *propagation*, and in such a case blisters are of no avail. But if an ophthalmia replaces the eczema of the skin, which in its turn acquires predominance when the ophthalmia is relieved, I call it *alternating* or *compensating*, and here blisters are in general useful. If they are useful here, they are imperiously demanded, when a bronchitis, an enteritis, a pulmonary, or intestinal catarrh is set up, and alternates with the cutaneous "*gourmes*;" for all these are but other manifestations of the same diathesis which a true pathologist must never overlook.

To decide upon the exhibition of *purgatives* is also somewhat difficult. The popular idea is, that these medicines constitute our sheet-anchor in treating "*gourmes*." If a somewhat severe diarrhœa occurs in a child subject to these affections, we observe on the very first day the eruption becomes paler, and if it continue, the inflammatory fluxion entirely disappears, and the cure may be effected without any topical remedy. If, however, the diarrhœa is naturally, or under the influence of medicine, arrested, you find the cutaneous affection almost immediately take on all the marks of activity it had lost. So that the antagonism between the skin and the gastro-intestinal mucous membrane is evident enough. With some practitioners, an artificial and spontaneous diarrhœa are the same things—in both, there is an intestinal flux. But the observer sees things differently. In spontaneous diarrhœa all the economy is prepared for this new fluxionary movement, and when it is established, it draws within its sphere of action a multitude of secondary vital acts. In artificial diarrhœa the economy resists the cause provoking it. There is doubtless a flux from the intestinal canal established; but it is isolated, all other acts of the economy retaining their independence. Compare the condition of the man who becomes the subject of a diarrhœa with his who takes a bottle of Seidlitz water, observe the exhaustion and *malaise* of the one, and the little inconvenience which a much *greater* number of stools causes to the other. A woman has not her menstrual discharge, or a man his hæmorrhoidal flux at their usual period, will the taking away a far larger quantity of blood than that usually lost from the vulva of the one, or the anus of the other, have the same effect on the economy? Some persons are affected several times in a year with an erysipelatous swelling of the nose or ear, substitute for such spontaneous irritation that produced by a large blister, and see if the effect will be the same. In a spontaneous act there is such a condition of the economy, that every function is in some measure subordinate to the actions about to take place, which can hardly ever be the case when the effect is sought to be produced by a therapeutical agent, unless indeed the indication has been well prepared and skilfully seized.

I have said enough to show that we must not judge of the influence which a purgative will exert by that which a spontaneous diarrhœa produces. But, if in lieu of the transitory action of a purgative given from time to time, we produce effect from day to day, or almost continuously; or again, if a temporary action be very energetic, and frequently renewed, we may produce results less marked, it is true, than those proceeding from spontaneous diarrhœa, but yet considerable enough to be of great importance to the practitioner. It remains to inquire whether a plan so acted upon is applicable to ordinary cases. I reply, it is not. It is dangerous for young infants, whether they are at the breast, or have been weaned. Gastro-intestinal phlegmasiæ, at this age, are of a grave character, whether considered as preventive of the active nutrition so requisite at this period of life, the acute, and often fatal affections they gave rise to, or the chronic ailments they predispose to. Purgatives, to be of service in "*gourmes*," must be active, and it is easy to give rise to greater disorders than those we are seeking to combat. Such precautions are not required for adults, adolescents, or even

for children above their third year, in whom these gastro-intestinal phlegmasiæ are established with difficulty, usually exempt from danger, and easily curable. If in an infant a slight diarrhœa, which had caused neither exhaustion nor wasting, and yet had much improved the condition of the "*gourmes*," becomes arrested, we must endeavour, by the aid of purgatives, to reproduce it, and maintain it as nearly as possible in the same state it had previously existed in.

Various vegetable ptisans have acquired a reputation as *depuratives*, and many of these, as bitter-sweet or wild pansy, and also chicory-juice, are very useful adjuvants when taken for a long time by the children who have passed their first infancy. But I must protest against the employment of *cod's-liver-oil* and *hydriodate of potass* to this end, even when the "*gourmes*" can be traced to a scrophulous origin. I have almost always found these two therapeutical agents produce vesicular and papular eruptions; and, during the treatment of rickets, I have frequently been obliged to suspend the administration of cod's-liver-oil, because the skin has become covered with eruptions sufficient in many cases to excite considerable febrile action.

ON THE USE OF GALVANISM IN LUMBAGO, SPRAINS, AND SOME OTHER PAINFUL AFFECTIONS OF THE MUSCLES AND JOINTS.—BY M. RACIBORSKI.

M. Raciborski observes that the utility of Galvanism in paralysis of particular nerves is well known, and that Magendie has proved by many recent cases its service in neuralgia generally, but especially in that of the branches of the fifth pair. Having witnessed many successful applications of this kind, mostly in the wards of M. Bouillaud, the author was led to believe the employment of galvanism might be advantageously extended to other affections characterized by violent pain and the absence of signs of inflammation, as muscular rheumatism and *lumbago*. His experiments have been highly successful, the suffering of this last painful affection being frequently forthwith relieved, after the patient had long tried other remedies in vain. The same may be observed of *rheumatism* affecting the muscles of the extremities. It is not easy perhaps to state the *modus operandi* of the remedy; but it would seem to be by directly subduing the *pain*, which prevents the contraction of the muscles, that galvanism produces the instantaneous relief seen in some cases. "Certain it is that, in many cases, we have applied galvanism with some success, even to painful swellings of the knees, rendering walking, if not impossible, at least very painful. Certainly galvanism did not cause the swelling to disappear, but the pain became dissipated, or so diminished, as to allow the patient to walk about. We do not doubt that the forced contraction which the galvanic shock produces in the fibres of the muscles, rendered motionless by the rheumatism, must contribute considerably to the good effects derivable from this means."

Four or five cases are given which were relieved almost immediately by galvanism, or rather, perhaps, we should call it galvanic acupuncture, inasmuch as needles were inserted in the parts where pain prevailed, and then brought in contact with the galvanic battery. A very few shocks, which usually themselves caused considerable temporary pain, sufficed to give relief, and enable the patient to exert muscular action without suffering. One or two of the cases seem to us, however, to have had all the characteristics of hysteria—but this matters little, inasmuch as an effectual means of relieving the pain of that troublesome affection is a *desideratum*.

"Since our notes were taken, we have had other opportunities of applying galvanism in analogous cases, and always with the same success; but, as at present we merely desire to draw the attention of practitioners to this new mode

of treatment, we need not extend the paper by citing their particulars. Nevertheless, we cannot terminate it without signalizing the admirable effects which galvanism produces in the treatment of *Sprains*. Every one knows that a sprain, although apparently a slight affection, often exacts much time for its cure. When it implicates the ankle or knee, it is not uncommon to see patients deprived of the use of their limbs during two or three months. It is the violent pain felt upon the slightest motion of the part (we are speaking only of simple, uncomplicated sprain,) which retards the cure. The other symptoms are of little consequence, and are usually dissipated promptly. Now, just as we have seen in lumbago, so in sprain, galvanism relieves this pain instantly, and allows the patient to walk without lameness."

M. Raciborski suggests that the galvanism may act by restoring the contraction and tension of the fibres of the articular capsule (and perhaps those of the tendons) which had been inordinately distended and elongated by the accident.—*Gazette Medico-Chirurgicale.*

IODINE INJECTIONS IN CHRONIC ARTICULAR DROPSY (HYDARTHROSIS.)

M. Jules ROUX (of Toulon,) having sent to the Academy an account of the successful treatment of a very large scapulo-humeral hydarthrosis by iodine injections, *M. Velpeau*, to whom the lot of reporting upon it fell, entered into the consideration of the management of *hydarthroses* generally, and his observations gave rise to a lively and prolonged discussion. We may first give a brief summary of M. Velpeau's remarks. He observes that many practitioners, having experienced the uselessness of topical remedies, such as lotions, ointments, &c., in these cases, have endeavoured by *general treatment* to effect the removal of the fluid. *Tartar-emetic and Calomel* have been the substances usually resorted to. M. Gimelle having observed the good effects of *Tartar-emetic*, when given in pleuritic, peritoneal, and other effusions, tried it in these, and with great success. M. Velpeau, however, in his trials, has found it of little, or at all events, only of temporary avail, although given in such large and long-continued doses as to risk exciting serious inflammatory action in the mucous-membranes of some subjects. *Calomel*, again, in numerous trials by exciting purgation or salivation, has induced a large absorption of fluid in a short period, but when its action has ceased, the effusion has been reproduced as abundantly as ever. *Very large* (*monstres*) *Blisters*, have also frequently been essayed by M. Velpeau. He has, during the last 15 years, employed these for a variety of acute and chronic inflammatory affections, not with a view to obtain a derivative action, but a positively depletory one, by inducing a great discharge of serum, which *large* blisters alone can produce. The general results he has obtained, he intends communicating shortly, and confines his attention now to the disease before us; and in this, he says, scarcely a week passes without exhibiting their advantage He clothes the whole joint, however large, in a blister, which extends beyond the margin of the disease, repeating it, and in some cases leaving the part alone during the intervals, and in others dressing it with iodine or mercurial ointment, or applying methodical compression. It is often not until the blister has dried up that the benefit is perceived; the first blister sometimes, indeed, seemed only to increase the mischief. The suffering produced by large blisters is not much greater than that caused by small ones, nor do these necessarily irritate the urinary passages, or induce fever. They constitute then a most valuable means of treating hydarthrosis, whether in its acute or chronic stage. They are, also, of use when the disease is only symptomatic, and may, if desired, be employed consentaneously with general measures. They will not, however, cure every articular dropsy; that of some joints, as the shoulder and the hip, seeming to

resist treatment more than others. Besides, some patients are unable to bear their application. Other means have to be resorted to in such cases, and among these are

Puncture.—In the case before us, M. J. Roux did not hesitate to let out a large quantity of fluid from the shoulder-joint by puncture, and many examples show us that this is by no means the dangerous operation it is stated to be by high surgical authorities. It should be performed with a small trocar, armed with a *cylindrical* canula, when the wound cicatrizes at once, and no inflammation follows. Unfortunately, it is rarely successful, the diseased surfaces of the joint remaining unmodified. Finding the fluid re-accumulate, M. Roux again removed it, and threw *iodine injection* into the joint. This application of the treatment of hydrocele to this disease of the joints is no new suggestion; but the accidents it has given rise to when practised formerly, led to its being disapproved by Boyer, and the other high authorities. But in Boyer's cases the joint was not opened by puncture, but incision, and the injection not thrown in at once, as in hydrocele, and the puncture allowed to cicatrize, but thrown in from day to day, just as if you would cleanse out the cavity of an abscess. M. Velpeau has long been in the habit of treating the varieties of hydrocele in communication with the peritoneum with the same success as the ordinary disease. The inflammation has not been propagated beyond the parts with which the iodine injection has come into contact; but then he has always taken care to throw this in through a small puncture only; and in this way, he states, opening into joints produces little inflammation. He attributes very little importance to the *admission of air*, so much dwelt upon by the advocates of sub-cutaneous incision; and has frequently observed it within the tunica vaginalis after the operation, without any evil resulting. In regard to the fears of *anchylosis* being induced, M. Velpeau believes, from his researches upon the structure of serous membranes, that these are capable of reproduction after the junction of opposing surfaces.

"The most powerful argument for using iodine injections, is the impunity with which I have been enabled to throw them into almost every serous cavity of the body. During the 12 years I have used this fluid, I have employed it upon near 300 patients affected with hydrocele; in cysts in all parts of the body, the interior of the vulva, and the female pelvis, in hernial sacs; in those seated in the groin, the iliac fossa, and the breast; in *goitres;* in different species of serous and sero-sanguineous cysts in the hyodean, parotidean, and sterno-mastoidean regions; in the bursæ mucosæ of the dorsum of the foot, the malleoli, and the patella; in the synovial cavities of the tendons of the foot, the ham, the wrist, and the elbow, &c., and all this with such fortunate results, that it is impossible for me henceforth to fear the consequences. The knee was the first joint in which M. Bonnet and myself employed iodine injections for hydarthroses."

Many members of the Academy took part in the discussion. M. *Roux* (of Paris) considered M. Velpeau's assertion, that inflammation never followed simple puncture for *hydrocele*, as contradicted by all experience, and that his substitution of solution of iodine for vinous injections in treating it, to be anything but an improvement. M. R. has employed wine in from 12 to 1500 cases, and has only met with five or six accidents, and that twenty years ago. He has yet to learn that iodine injections are harmless, and that they are less efficacious, is seen in the number of relapses which occur, these yielding easily enough afterwards to vinous injection. Moreover, he could not agree with M. V. that an injection may be efficacious without inducing adhesion of the opposite surfaces. As to applying this method to *hydarthroses*, it is not advisable, seeing they may be cured by more safe means.

M. *Blandin*, also, opposed M. Velpeau's conclusions. He stated that a simple puncture of a joint containing fluid by means of a trocar, is by no means

dangerous, but that the *admission of air* may produce the worst consequences: M. V. has not alluded to two means of treating hydarthrosis which usually prevent the necessity of having recourse to any other. The one is inducing salivation by the local application of *mercurial ointment* to the part, and the other, the envelopment of the joint by the *starch bandage*, either or both of which methods M. B. has found very successful. The substitution of iodine injections for vinous, in *hydrocele*, is unadvisable, inasmuch as the latter are, when properly thrown in, quite innocent and efficacious, whereas the former frequently fail. In employing these in *hydarthrosis*, M. V. says he has met with no serious accidents, but certain it is he will do so ere long, if he persevere in such a course.

M. *Gerdy* stated that M. Lugol and others have long employed injections for dropsical joints, but that he has never had recourse to any such proceeding himself, believing it to be a dangerous one. He has known very bad consequences result; and one of M. Velpeau's own patients died poisoned by the iodine absorbed. So, too, in *hydrocele*, a man died at Calcutta after iodine injections, and as the same inconveniences which occasionally occur after vinous injections occur after iodine ones, while their efficacy is not so great, why should their substitution be attempted.

M. *Jobert* could not admit that a greater number of relapses follow the iodine than the vinous injection for hydrocele. He has met with but one out of 75 cases in which he has used it. Comparing the one with the other, the vinous gives rise to much more pain and a higher degree of inflammation, sometimes terminating in abscess—so that the substitution of the iodine is a gain to surgery. He has also employed this with advantage in other cases, as chronic abscess, hydatid tumours and cysts, and tubercular cysts. In a patient who had a vast abscess of the neck, after twice evacuating collections of matter, he threw in 8 ozs. of the iodine injection with the effect of producing adhesion of the walls of the abscess.

M. *Berard* observed that, althought at first prepossessed against the iodine injections in *hydrocele*, upon trial he became so convinced of their superiority, that he has since employed no other. He has also used them in encysted dropsies of the cord, in goitres, in hydatid cysts of the wrist, and in articular dropsy. He employs M. Velpeau's proportions of equal parts of water and tincture. He has never met with any general or local ill-consequence, the pain being slight in some cases, severe in others. In between 250 and 300 operations for hydrocele, he has met with but three relapses, which were relieved by a second injection. Success attended injections also in two cases of encysted hydrocele, and in two of encysted hydrocele of the neck: but in the two cases of articular dropsy they were inefficacious, amputation being afterwards required.

M. *Laugier* stated that he had had occasion to employ iodine injections for *hydrocele* a great number of times, and could only congratulate himself on the results. He had met with neither accidents nor relapses, and considers the procedure more simple and precise than that of the employment of wine, which varies so in strength and quality.

M. *Velpeau*, in reply, denied that one of his patients had died poisoned by iodine. The operation was quite successful, when a sudden hæmoptysis carried him off, between two and three months after its performance. In reference to the *relapses* after iodine, we must not forget that these not unfrequently occur after vinous injection also. M. V. prefers iodine, just as he once did wine, because, after a trial of every substance which has been recommended, he finds it the best. The want of success of *Fricke* of Hamburgh has been cited: but this practitioner used an exceedingly weak solution, and re-operated in 10 or 12 days—a period far too short to judge whether success had occurred or not. Iodine does not require, like wine, that the *tunica vaginalis* shall be distended, and, in a great majority of cases, causes infinitely less pain, partly, no doubt, on this account. Encouraged by his first successes, M. V. has been enabled to apply this remedy

to more and more serious diseases; and it is important to observe that, when it becomes accidentally thrown into the cellular tissue, it does not cause gangrene, as wine does; and various experiments has convinced M. Velpeau that it possesses the property of exciting a special inflammation, which does not terminate in suppuration."—*Bulletin de l'Académie.*

On the Chlorosis of Adults. By M. Blaud.

"There is a disease, pretty commonly met with, which seems to me to have escaped the observation of most practitioners. This affection, of great danger if misunderstood, is the *Chlorosis of Adults.* I do not allude to that decoloration of the skin dependent upon some prior disease, such as hæmorrhage, intermittent fever, or some organic lesion, acute or chronic, &c.; but to an *essential idiopathic chlorosis*, proceeding from no other cause but such as produces it directly, that is, a particular defect of hæmatosis, and which can only be relieved by re-establishing the normal condition of this function.

"Chlorosis is by no means peculiar to young girls arrived at puberty, and it is from want of attention to this fact, that many practitioners have mistaken it, when occurring in adults, for different organic lesions, which in fact had no existence. Some, seeing the pale or yellow skin, have declared it to be symptomatic of hepatic lesion, and others have attributed it to affection of the spleen. Some attribute the dyspnœa and palpitations to lesions of the heart or large vessels, and others see in these the symptoms of an asthma. Such different views lead to various plans of treatment, none of which are efficacious, the chlorosis, indeed, seeming to derive a new intensity from their operation. Chlorosis may attack adults of either sex, any age, and of any condition in life. We have seen subjects of it persons leading the most active and laborious lives, and others passing their time in luxurious idleness. The sober and the intemperate; those whom misery oppresses, and those who enjoy every abundance in life, may alike become its victims. So that the *predisposing* causes of the affection are as yet very obscure. The colourless and serous condition of the blood, the general debility, and languor of every function, seem to show that defective hæmatosis is the *proximate* cause. The *symptoms* are the same as in the chlorosis of young girls—such as the yellowish-green skin (the conjunctivæ preserving their normal whiteness,) dyspnœa upon locomotion, *bruit de souffle* in the course of the carotids, &c. Still there are modifications noticeable. The colour of the skin is rather greyish or earthy, than yellow, in consequence of its rough or wrinkled state, especially in the face. The palpitations are more severe; while there is moreover a deep, insupportable *malaise*, sometimes accompanied by a disposition to suicide, and a more or less abundant anal hæmorrhage coming on at irregular intervals. With the general langour and disorder of the digestive organs, there is œdema of the extremities; and, if the disease be left to itself, a serous effusion into the cavity of the abdomen results from the atony of the absorbents. However severe these symptoms may appear, they never resist appropriate *treatment*, when this is not resorted to too late."

Of the cases he has met with, M. Blaud selects eight for description, four of them being women from 26 to 37 years of age, and the others, men engaged in active or laborious occupations. In most of these, various kinds of treatment had been employed before they came under the author's care, in the idea that organic disease was present: but he, guided by the general appearance of the patient and the absence of marked signs of such lesions, treated them all for chlorosis with complete success. He employed his own anti-chlorotic pills,*

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* M. Blaud's pills are thus composed and administered. Let equal parts of

which have attained so high a reputation in France, in every case; and complete cures resulted in periods varying from 10 to 30 days of taking them. He adds in a note, that long experience has convinced him that these pills are also a specific in *intermittent fever accompanied with œdema of the lower extremities*, which has resisted quinine and all other febrifuges.

M. REVEILLE-PARISE ON THE EMPLOYMENT OF COLD CATAPLASMS.

Every one acknowledges that, in medicine and surgery, as in everything else, we frequently follow practices from habit, prejudice, or routine, in contradiction to the most evident and best-established principles. An example is found in the constant use of warm, so called *emollient*, cataplasms, in numbers of cases in which a high temperature is entirely opposed to the indications, which teach us to diminish the excitement and the activity of the circulation, by preventing the excessive development of caloric. Upon the occurrence of a wound or bruise we have recourse to refrigerants, in order to diminish as much as possible inflammatory reaction; but suppose this has already commenced, we then apply warm poultices. Caloric is the most powerful exciter of vital action, and to apply it in these cases is to follow in the steps of the homœopathists, without however adopting their infinitesimal doses. So far from being *emollient*, the great heat at which they are applied renders them stimulant. They may in a few cases act advantageously by augmenting the inflammatory action, and thus hasten on the formation of pus; but, in the great majority of cases, this is not the object which we have in view, but the removal or the diminution of inflammatory action.

M. R. P. cites some cases in which he substituted cold for hot cataplasms with the greatest advantage: among others, some instances of *panaris*, in which, after incising and disgorging the parts with tepid water, the greatest ease attended the use of cold cataplasms, while warm ones only aggravated the suffering. We employ cooling drinks and other means of lowering the temperature in fevers, and in eruptive diseases, and we know how hurtful heat is in an excited condition of the skin, as in pruritus; and yet we pursue an opposite practice in phlegmon, traumatic inflammations, acute rheumatism, &c. Formerly, warm poultices were applied in cases of ophthalmia, but judicious surgeons have long substituted cold applications; and Dr. Tanchou has also employed these with advantage in certain tumours of the breast, &c., threatening to degenerate into cancer.

The cataplasm, however, need not at first be absolutely cold, as it might excite pain in the morbidly sensitive inflamed surface, especially in women, children, and nervous or delicate persons. Many persons, from the effects of habit, can only gradually accustom themselves to bear it quite cold, the same application causing pain at first which afterwards produces ease. So that we must gradually adapt the means to the patient's sensibility. Moreover, a cold poultice must not be left too long unchanged, as it produces then a very disagreeable sensation. When the inflammation is active the poultice soon becomes heated, and,

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sulphate of iron and sub-carbonate of potass be finely powdered separately, and then intimately mixed. Beat them into a mass with tragacanth mucilage. Twelve grains form two pills. Take two morning, mid-day and evening, on the first, second, and third days: four morning and evening on the fourth, fifth and sixth days; four morning, mid-day, and evening, on the seventh, eighth and ninth days; six morning and evening on the tenth, eleventh, and twelfth days: and then six morning, noon and evening, until cured.

although some patients feel no speedy inconvenience from this, others, owing to the evaporation being impeded by the thickness of the cataplasm, are uneasy if it is retained for long. If however, the patient complains of no uneasiness, the poultice may be left on with advantage for hours.

After the cataplasm has been applied for awhile, the patient usually feels much easier, the pain, heat, irritation, tension, and pulsation abating markedly. On examining the part, we find the redness much diminished, and oftentimes a pale patch here and there announces the commencement of resolution. Cold is in fact the most powerful of sedatives, and its action upon our tissues is far more efficacious than is usually believed. It prevents, by contracting them, the engorgement of the smaller vessels, it condenses the fluids, moderates the circulation, benumbs the sensibility, and diminishes irritation. Moreover, in the above gradual mode of employing it, we do not find that re-action of heat and redness which generally follows its sudden application to the surface. If, notwithstanding our care, suppuration does take place, this is always less abundant than when the inflammatory action is stimulated by hot poultices. The beneficial action of these cataplasms may also sometimes be increased by mixing medicinal bodies with them, such as a solution of acetate of lead, the various narcotics, &c. "In cases of inflammatory swelling and acute neuralgia, I have anointed the parts with belladonna ointment, and, leaving a layer on the surface, have applied over it cold cataplasms. This practice is almost certain to be successful, if the cause of the affection does not continue in operation."—*Bulletin de Thérapeutique.*

(There can be no doubt that hot cataplasms are too indiscriminately employed, and indeed the practitioner usually contents himself with ordering a poultice without giving any directions as to its temperature. Patients look on with the same incredulity as did the host of the Satyr, when they are told the same means may prevent or hasten suppuration, according as it is applied in a cold or hot condition. We are surprised M. Reveille-Parise takes no notice of water-dressing, which is in most cases so elegant and useful a substitute for cataplasm.—*Rev.*)

ANEURISM OF BONES. By M. NELATON.

Several authors have noticed this disease, but many of the cases cited are evidently but examples of malignant tumours or serous cysts deriving pulsations, without direct communication with the arteries. True, simple, aneurism of the bones is in fact a very rare disease. It is especially found within the cancellous structure of the extremities of the long bones, the upper extremity of the tibia being beyond all other parts most frequently its seat. Aneurisms are however sometimes found in all the other long bones, as also in the flat ones, as in M. Roux's case of aneurism in the diploe of the parietal bone. In proportion as the tumour increases, the structure of the bone becomes removed, with the exception of a thin shell, and even complete perforation would sometimes ensue but for a thickening and fibro-cartilaginous transformation which the periosteum undergoes. In one of Scarpa's cases the articular extremity would have been completely separated from the body of the bone, but for the periosteum, which held the parts together. The trunks of the principal vessels undergo no alteration whatever; but the branches which enter the spongy structure of the bones are dilated, a vast number of them opening into the sac. The joint in the vicinity of the aneurism has always been found healthy. Breschet compares these to the erectile tumours of soft parts, but the analogy does not hold good; for, instead of erectile tissue, we have a true sac containing layers of coagula, just like ordinary aneurism; but supplied by many small vessels instead of one large trunk. Scarpa's finding, in two cases he examined after death, a yellowish, semi-

elastic substance under the periosteum, was disposed to believe that the early stage of the disease consisted of an erectile tumour, and that the aneurism, properly so called, was only formed at a later period, by a rupture of a vessel in this tissue. It is, however, possible that he mistook a pulsating cancerous tumour for aneurism. Cancerous degeneration is often seen in the vicinity of these aneurisms, and the affinity of the two affections may explain the frequent examples of relapse.

Symptoms.—Sometimes the pain and uneasiness of this disease is long in establishing itself; but for the most part it comes on quite suddenly, with a sense of cracking near the joint. After continuing two or three months a tumour is perceived. It is at first very small, and may escape notice; but after a while becomes prominent, the skin over it then becoming violet-coloured, and transparent, so as to exhibit the numerous subcutaneous veins. On examining the tumour we find it to be connected with the bone, and presenting different degrees of consistency at various points. Frequently, on pressing the more resisting portions, we are sensible of a sensation which has been compared to the crackling of parchment, or the breaking of an egg-shell, a sign dependant upon the depression and re-elevation of the thin osseous shell of the bone. One of the most characteristic symptoms is the well marked pulsations, synchronous with those of the heart, and which are suspended when the principal vessel leading to the part is compressed. There is no *bruit de souffle*. The disease has always been observed in young persons or adults, and has, in different cases, been attributed to various acts of external violence; although, doubtless, the changes in the bone had already commenced. The *progress* of the disease is generally slow. Many of the patients have had these tumours for several years without their acquiring a very large size. Do they not, like other aneurisms, burst when they have reached a certain size? It is possible; but there is no authentic example of their doing so; for the ulcerations and hæmorrhages spoken of by some authors, probably arose from pulsating cancerous degenerations.

Diagnosis.—An aneurism of a bone may be confounded with one of the soft parts, the symptoms of the two being so very similar; and, before *post-mortem* examinations had explained the true nature of these cases, the mistake was inevitable. In the cases treated by Pearson, Scarpa, and Lallemand, the disease was supposed to be an aneurism of the articular arteries of the knee, or of the anterior tibial. The osseous aneurism forms one body, as it were, with the subjacent bone, a thin shell of which imparts a sense of crepitation; when the tumour is reduced by slow pressure, we perceive the loss of substance in the bone. The aneurisms unconnected with the bone are more mobile, and impart the *bruit de souffle* to the ear. A *malignant pulsating tumour* is distinguished with greater difficulty. The chief points are, that it cannot be partially reduced by pressure to the same extent as an aneurism, while it usually gives the *bruit de souffle* in auscultation.

Treatment.—It is a most serious disease, for if left alone it entirely destroys and renders useless the bony parts it is seated in; while an operation is dangerous, and frequently followed by a relapse. *Excision* of the diseased part is obviously impossible in most cases. M. Roux relates the only one on record in which it was performed by a surgeon at Geneva—a portion of the walls of the cranium being removed, the patient died in a few days. *Amputation* has been frequently performed, and perhaps is the only suitable operation when the disease has reached a certain point. The analogy existing between these and ordinary aneurism suggested to Dupuytren the employment of the *ligature*. He practised his operation in 1819, as did M. Lallemand in 1826. M. Roux, has recently published two other cases; and the author of this paper tied the crural artery

about three months since. In Dupuytren's case a relapse occurred six years after the operation, rendering amputation necessary. M. Lallemand states that his case was cured, without however, furnishing any particulars of the condition in which the limb was left. In one of M. Roux's cases, the brachial artery was tied for a pulsating tumour, at the extremity of the radius, but the disease, which was combined with cancerous degenerescence, was only temporarily arrested, and amputation afterwards was had recourse to. The second case, in which he tied the crural artery, was quite successful, and five months after, the tibia had almost recovered its normal condition. In M. Nelaton's own case, the pulsations at first ceased, but were soon reproduced, and the tumour is only a little less three months after the operation, than before this was undertaken. When the pulsation recurs, after being temporarily arrested by the ligature, we may, like Dupuytren did, have recourse to compressing the principal artery leading to the part, and even the sac itself.—*Gazette Médico-Chirurgicale.*

M. BERARD ON SPONTANEOUS HÆMATOCELE.

Boyer states that Hæmatocele is never spontaneous, but always results from contusion or operation, and the majority of cases that are met with in practice arise in this manner; but if the statements of patients are to be believed, cases occasionally occur in which blood is effused into the tunica vaginalis or cellular tissue of the scrotum without any known traumatic cause. The origin of the disease in such cases is as obscure as it is in many examples of effusions into the arachnoid, pleura, and other cavities. This origin of hæmatocele should be carefully borne in mind, as it may be confounded with much more serious diseases; for practitioners at present, on learning from the history of these cases that no external violence had been suffered, would be much more likely to refer the symptoms to encephaloid cancer than to their true cause.

Spontaneous, like traumatic hæmatocele, may be either *extra-vaginal* or *intra-vaginal*. The blood in either case may remain a very long period without being absorbed, a portion of it becoming coagulated into concentric layers, like that of an aneurismal sac, and the rest retaining its fluid condition. The effusion may be so considerable that the form, size, and consistence of the tumefaction much resembles degenerated structure. When the hæmorrhage is external to the tunica vaginalis the diagnosis is generally more easy, as it is less densely covered, and more easily assumes an irregular form not usually observed in affections of the testicle and tunica vaginalis. But when the effusion takes place within the sac, the testicle becomes entirely surrounded by the blood, and the epididymis is completely concealed by it, so that the actual condition of the testis cannot be ascertained. In such a case, if the skin is observed to be reddened and somewhat thin, the veins dilated, the pains of a lancinating character, the weight of the tumour considerable, and the sensation imparted to the fingers, resembling the semi-fluctuation of half-softened encephaloid, you may readily mistake the affection for cancer. Even an exploratory puncture may lead to error, if the needle only penetrates the coagulated blood.

Two cases are related. In the first (a lad of 15,) of the *extra-vaginal* variety, the affection had only been ten days in acquiring the size of a turkey's egg, and the testicle was found to be distinct at the upper part of the tumour. The diagnosis was therefore easy, and a free incision having evacuated the blood, a moderate degree of suppuration was established, and the patient was cured in a fortnight. The other (æt. 25,) an example of the intra-vaginal variety, the swelling had occupied more than a year in reaching the size of a fist. The skin was distended, the weight of the tumour considerable, the veins on its surface

somewhat dilated, and the pains were of a lancinating character. The swelling was not transparent and was heavier than a hydrocele. It was not fluctuating, but a softening could be felt here and there. Its surface was not irregular as that of scirrhus or mammelonated like tuberculous testis. The testicle could not be felt separately, a slight projection only being supposed to indicate the situation of the epididymis. An exploratory puncture was made at the lower part of the tumour, but no liquid flowed out. The existence of a sarcocele seemed to be well established, and an operation was proceeded with. But the error of diagnosis was discovered upon opening the tunica vaginalis, which was found to contain a large quantity of coagula, disposed in some situations in concentric layers, and about two ounces of fluid blood. The testicle was enveloped in the solidified effused blood, and was found to have retained its normal size and shape.—*Gazette Médico-Chirurgicale.*

PROFESSOR PAUL DUBOIS UPON THE SIGNS OF PREGNANCY.

We are glad to find by a recent Number of the *Gazette Médicale*, that this eminent practitioner is about to publish his work on Midwifery, which has been so long promised and so anxiously expected. Judging from the Chapter there printed it will prove of the useful and practical character his high reputation and large practice would have led us to anticipate. We have only space for a few of his remarks upon the condition of *menstruation* and the *breasts* in pregnancy. After quoting with approbation Gooch's useful observations upon the suppression of menstruation without pregnancy, he continues—

"That the menses also may continue although pregnancy exists is a fact now well established in science, and a year does not pass without my having occasion to point out to my clinical pupils well-marked examples of this exception. Although these anomalies have attracted the attention of practitioners for a long period, the exactness of the observations upon which they are founded has been denied by very high authorities, such as Denman and Hamilton. My father, also, whose experience was very extensive, and whose enlightened mind allowed him to respect opinions quite contradictory to those which he held, taught that the persistence of the menses was a sufficient reason to declare that the patient was not pregnant. Observation will not sustain these opinions; but when we find them expressed by men whose ability, experience, and judgment cannot be called into question, it is certain that menstruation during pregnancy must be at least a rare phenomenon, and that young practitioners singularly abuse their acquaintance with this exception, in admitting much too often, and almost always erroneously, the existence of pregnancy in women whose menses are not suspended. * * * * * * * * * *

"If there are circumstances under which the mere consideration of the state of the menses would lead us into error, there are others in which it is of no avail. I have said elsewhere, that although the establishment, and to a certain extent, the regularity of this function are favorable and almost necessary for fecundation, it yet must not be denied that this may occur in the absence of these conditions, of which I furnished several proofs. Women too have become pregnant without having been regular, or even being destined ever to be so. Others have become so after the natural cessation of the function; and others again, who have had long intervals between their periods, or in whom the menses have been suppressed by serious diseases. Lastly, others have become so during the temporary suspension incident upon suckling. These anomalies, however, do not, like the preceding, lead us to erroneously admit or reject the existence of pregnancy. They are not the cause of an erroneous opinion, but they may prevent our forming a correct one. Some women, again, by a freak of their organization are made aware of their pregnancy by the very sign which excludes the

idea of it in others. Such are women who are not usually regular except when they are pregnant, or others, who, although regular, yet also meet with a discharge at an unexpected period whenever conception occurs. Deventer and Baudelocque have furnished examples of the first of these, and Desormeaux, Pusoz and others of the second."

The Breasts.—"We must remember that the swelling and sensibility of the breasts are very slight during pregnancy under certain circumstances, as in women of very delicate constitution or enfeebled health, in some of whom, hardly any change occurs. More importance is usually attached to the modifications which the nipple and its areola undergo. These consist in—1. A tumefaction (which appears œdematous or emphysematous) of the skin of this part of the breast. 2. A development of papillary tubercles. 3. A more or less deep brown colour. The *humid and emphysematoid swelling* of the nipple and areola has seemed to me to be very well marked in some women, but inappreciable in most others, and on this account I do not think with Hamilton, that this is a very useful diagnostic mark. There is not the same difficulty with respect to the *papillary tubercles*, which are frequently developed in pregnancy, and easily recognized. Unfortunately, their value as a sign is diminished by the fact of my having observed them well developed in women who were not pregnant, most of whom certainly had had children, but several never had. Then in a very great number of pregnant women they are not to be perceived; and this fact has so forcibly struck me, that I have enquired of myself whether the difference in the observations made by Montgomery in Ireland, and mine in France, might not be attributable to a difference in the organization of the nipples in the subjects of our respective researches. This phenomenon taken alone is then far from having in my eyes the importance attached to it by the distinguished Dublin accoucheur. In its semeiological relation, *the brown colour of the nipple* seems to me to possess most interest, inasmuch as it is more easy of detection than the turgescence of the nipple, and its manifestation is much less exceptive than that of the tubercles. Still I must observe, this sign is sometimes wanting, especially in women with very white skin and fair hair; that as the colour is more or less persistent after the first pregnancy, it does not throw much light upon subsequent ones; and that, according to some good authors, it may be occasionally induced by other causes than pregnancy. As then neither of these conditions of the nipple taken alone, is a demonstrative sign of even a first pregnancy, does their co-existence possess more value? Montgomery believes that all these conditions of the nipple occurring in a woman who has never borne children present a positive indication of the existence of pregnancy, and his opinion seems to me quite admissible. I must add, however, that I do not regard their absence as an absolute negative sign; and that, even when they are visible enough to constitute a demonstrative sign, the pregnancy is usually sufficiently advanced to allow of its detection by more certain means than the examination of the areola."

A Cheap Substitute for a Vapour-Bath.

Dr. Serre (d'Alais) recommends the following means of inducing abundant transpiration. "Take a piece of lime about half the size of your fist, and wrap around it a wet cloth, sufficiently wrung to prevent water running from it. A dry cloth is to be several times wrapped around this. Place one of these packets on each side of the patient when in bed. An abundant humid heat is soon developed by the combination of the lime with the water, which quickly induces copious transpiration—the effect of the apparatus lasting for two hours at least. When sweating is fully established, we may withdraw the lime, which is now reduced to a powder, and is easily removed. In this way, neither copious drinks nor loading the bed with coverings is required."—*Gazette Médicale.*

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